

[MS-OXONOTE]: Note Object Protocol Specification

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Revision Summary

Date	Revision History	Revision Class	Comments
04/04/2008	0.1		Initial Availability.
06/27/2008	1.0		Initial Release.
08/06/2008	1.01		Revised and edited technical content.
09/03/2008	1.02		Updated references.
12/03/2008	1.03		Updated IP notice.
04/10/2009	2.0		Updated applicable product releases.
07/15/2009	3.0	Major	Revised and edited for technical content.
11/04/2009	4.0.0	Major	Updated and revised the technical content.
02/10/2010	4.0.0	None	Version 4.0.0 release
05/05/2010	4.0.1	Editorial	Revised and edited the technical content.
08/04/2010	4.1	Minor	Clarified the meaning of the technical content.
11/03/2010	4.2	Minor	Clarified the meaning of the technical content.
03/18/2011	4.2	No change	No changes to the meaning, language, and formatting of the technical content.
08/05/2011	4.3	Minor	Clarified the meaning of the technical content.
10/07/2011	4.3	No change	No changes to the meaning, language, or formatting of the technical content.
01/20/2012	5.0	Major	Significantly changed the technical content.
04/27/2012	5.0	No change	No changes to the meaning, language, or formatting of the technical content.
07/16/2012	5.0	No change	No changes to the meaning, language, or formatting of the technical content.
10/08/2012	5.1	Minor	Clarified the meaning of the technical content.

Table of Contents

1 Introduction	5
1.1 Glossary	5
1.2 References	5
1.2.1 Normative References	5
1.2.2 Informative References	6
1.3 Overview	6
1.4 Relationship to Other Protocols	6
1.5 Prerequisites/Preconditions	7
1.6 Applicability Statement	7
1.7 Versioning and Capability Negotiation	7
1.8 Vendor-Extensible Fields	7
1.9 Standards Assignments	7
2 Messages	8
2.1 Transport	8
2.2 Message Syntax	8
2.2.1 Note Object Properties	8
2.2.1.1 PidLidNoteColor Property	8
2.2.1.2 PidLidNoteWidth Property	8
2.2.1.3 PidLidNoteHeight Property	8
2.2.1.4 PidLidNoteX Property	9
2.2.1.5 PidLidNoteY Property	9
2.2.2 Additional Property Constraints	9
2.2.2.1 Best Body Properties	9
2.2.2.2 PidTagIconIndex Property	9
2.2.2.3 PidTagMessageClass Property	9
2.2.2.4 PidTagNormalizedSubject Property	9
2.2.2.5 Recipients	9
2.2.2.6 Attachment Objects	10
3 Protocol Details	11
3.1 Client Details	11
3.1.1 Abstract Data Model	11
3.1.2 Timers	11
3.1.3 Initialization	11
3.1.4 Higher-Layer Triggered Events	11
3.1.4.1 Creating a Note Object	11
3.1.4.2 Modifying a Note Object	11
3.1.4.3 Deleting a Note Object	11
3.1.5 Message Processing Events and Sequencing Rules	12
3.1.6 Timer Events	12
3.1.7 Other Local Events	12
3.2 Server Details	12
3.2.1 Abstract Data Model	12
3.2.2 Timers	12
3.2.3 Initialization	12
3.2.4 Higher-Layer Triggered Events	12
3.2.5 Message Processing Events and Sequencing Rules	12
3.2.6 Timer Events	12
3.2.7 Other Local Events	13

4 Protocol Examples	14
4.1 Sample Note Object	14
5 Security	16
5.1 Security Considerations for Implementers.....	16
5.2 Index of Security Parameters	16
6 Appendix A: Product Behavior	17
7 Change Tracking	18
8 Index	20

1 Introduction

The Note Object Protocol enables the representation of a brief note that functions as the electronic equivalent of a paper sticky note. This protocol extends the Message and Attachment Object Protocol, which is described in [\[MS-OXCMSG\]](#).

Sections 1.8, 2, and 3 of this specification are normative and can contain the terms MAY, SHOULD, MUST, MUST NOT, and SHOULD NOT as defined in RFC 2119. Sections 1.5 and 1.9 are also normative but cannot contain those terms. All other sections and examples in this specification are informative.

1.1 Glossary

The following terms are defined in [\[MS-GLOS\]](#):

handle

The following terms are defined in [\[MS-OXGLOS\]](#):

Attachment object
Folder object
Mail User Agent (MUA)
mailbox
Message object
named property
Note object
plain text
plain text message body
property ID
property type
recipient
remote operation (ROP)
Rich Text Format (RTF)
ROP request
special folder

The following terms are specific to this document:

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

References to Microsoft Open Specifications documentation do not include a publishing year because links are to the latest version of the technical documents, which are updated frequently. References to other documents include a publishing year when one is available.

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-OXCMSG] Microsoft Corporation, "[Message and Attachment Object Protocol Specification](#)".

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

[MS-OXOSFLD] Microsoft Corporation, "[Special Folders Protocol Specification](#)".

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

[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-OXCPRPT] Microsoft Corporation, "[Property and Stream Object Protocol Specification](#)".

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

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

[MS-OXOCFG] Microsoft Corporation, "[Configuration Information Protocol Specification](#)".

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

[MS-OXRTFEX] Microsoft Corporation, "[Rich Text Format \(RTF\) Extensions Algorithm](#)".

1.3 Overview

The Note Object Protocol allows a user to store in his **mailbox** a simple text note (that is, text with minimal formatting) that functions as the electronic equivalent of a paper sticky note. To represent the sticky note, this protocol defines a **Note object**. The properties that are specific to a Note object contain information about the background color, window location, and size of the note. A Note object is stored in a **Folder object**. The Note Object Protocol also specifies how a Note object is created and manipulated.

The Note Object Protocol extends the Message and Attachment Object Protocol, described in [\[MS-OXCMSG\]](#), in that it defines new properties for a **Message object** and adds constraints to the existing properties of a Message object.

1.4 Relationship to Other Protocols

The Note Object Protocol has the same dependencies as the Message and Attachment Object Protocol, which it extends. For information about the Message and Attachment Object Protocol, see [\[MS-OXCMSG\]](#).

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

1.5 Prerequisites/Preconditions

The Note Object Protocol has the same prerequisites and preconditions as the Message and Attachment Object Protocol, as specified in [\[MS-OXCMSG\]](#).

1.6 Applicability Statement

A client uses this protocol to create and maintain a user's sticky notes.

1.7 Versioning and Capability Negotiation

None.

1.8 Vendor-Extensible Fields

This protocol provides no vendor extensibility beyond what is already specified in [\[MS-OXCMSG\]](#).

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

The Note Object Protocol uses the same underlying transport as that used by the Message and Attachment Object Protocol, which is specified in [\[MS-OXCMSG\]](#).

2.2 Message Syntax

A Note object can be created and modified by clients and servers. Except where noted, this section defines constraints under which both clients and servers operate.

A client operates on a Note object by using the Message and Attachment Object Protocol, as specified in [\[MS-OXCMSG\]](#). How a server operates on a Note object is implementation-dependent, but the results of any such operation MUST be exposed to clients in a manner that is consistent with the Note Object Protocol.

Unless otherwise specified, a Note object adheres to all property constraints specified in [\[MS-OXPROPS\]](#) and all property constraints specified in [\[MS-OXCMSG\]](#).

2.2.1 Note Object Properties

The properties specific to a Note object are defined in section [2.2.1.1](#) through section [2.2.1.5](#).

2.2.1.1 PidLidNoteColor Property

Type: **PtypInteger32** ([\[MS-OXCADATA\]](#) section 2.11.1)

The **PidLidNoteColor** property ([\[MS-OXPROPS\]](#) section 2.183) specifies the suggested background color of the note. This property MUST be set to one of the values specified in the following table.[<1>](#)

Value	Color
0x00000000	Blue
0x00000001	Green
0x00000002	Pink
0x00000003	Yellow
0x00000004	White

2.2.1.2 PidLidNoteWidth Property

Type: **PtypInteger32** ([\[MS-OXCADATA\]](#) section 2.11.1)

The **PidLidNoteWidth** property ([\[MS-OXPROPS\]](#) section 2.185) specifies the width of the note's visible window in pixels. The value of this property MUST be greater than zero.

2.2.1.3 PidLidNoteHeight Property

Type: **PtypInteger32** ([\[MS-OXCADATA\]](#) section 2.11.1)

The **PidLidNoteHeight** property ([\[MS-OXPROPS\]](#) section 2.184) specifies the height of the note's visible window in pixels. The value of this property MUST be greater than zero.

2.2.1.4 PidLidNoteX Property

Type: **PtypInteger32** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidLidNoteX** property ([\[MS-OXPROPS\]](#) section 2.186) specifies the distance, in pixels, from the left edge of the screen that a user interface displays the note.

2.2.1.5 PidLidNoteY Property

Type: **PtypInteger32** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidLidNoteY** property ([\[MS-OXPROPS\]](#) section 2.187) specifies the distance, in pixels, from the top edge of the screen that a user interface displays the note.

2.2.2 Additional Property Constraints

This protocol specifies additional constraints on some Message object properties beyond what is specified in [\[MS-OXCMSG\]](#). These constraints are specified in sections [2.2.2.1](#) through [2.2.2.6](#).

2.2.2.1 Best Body Properties

Best body properties specify the content of the note. The content is a **plain text message body** stored in the **PidTagBody** property ([\[MS-OXCMSG\]](#) section 2.2.1.50.1).[<2>](#)

2.2.2.2 PidTagIconIndex Property

Type: **PtypInteger32** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidTagIconIndex** property ([\[MS-OXOMSG\]](#) section 2.2.1.10) specifies which icon a user interface is to use when displaying a group of Note objects. The value of this property MUST be 0x00000300 added to the value of the **PidLidNoteColor** property (section [2.2.1.1](#)).

2.2.2.3 PidTagMessageClass Property

Type: **PtypString** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidTagMessageClass** property ([\[MS-OXCMSG\]](#) section 2.2.1.3) specifies the type of the Message object. The value MUST be "IPM.StickyNote" or begin with "IPM.StickyNote.", in addition to meeting the criteria specified in [\[MS-OXCMSG\]](#) section 2.2.1.3.

2.2.2.4 PidTagNormalizedSubject Property

Type: **PtypString** ([\[MS-OXCDATA\]](#) section 2.11.1)

The **PidTagNormalizedSubject** property ([\[MS-OXCMSG\]](#) section 2.2.1.10) specifies an abbreviated version of the contents of the note.[<3>](#)

2.2.2.5 Recipients

A Note object MUST NOT have **recipients (1)**.

2.2.2.6 Attachment Objects

A Note object MUST NOT have **Attachment objects**.

3 Protocol Details

3.1 Client Details

The client creates and manipulates a Note object and in all other ways operates within the client role as specified in [\[MS-OXCMSG\]](#).

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.

This protocol uses the abstract data model that is specified in [\[MS-OXCMSG\]](#) section 3.1.1 with the following adaptations:

- The Note object is an extension of the Message object.
- A Note object is created in the Notes folder, which is a **special folder**, unless the **Mail User Agent (MUA)** explicitly specifies another folder. For details about special folders, see [\[MS-OXOSFLD\]](#).

3.1.2 Timers

None.

3.1.3 Initialization

None.

3.1.4 Higher-Layer Triggered Events

3.1.4.1 Creating a Note Object

When a user creates a new note, the client creates a Message object as specified in [\[MS-OXCMSG\]](#) section 3.1.4.2, sets properties in accordance with the requirements in section [2.2](#), and saves the resulting Message object as specified in [\[MS-OXCMSG\]](#) section 3.1.4.3.

3.1.4.2 Modifying a Note Object

When a user opens and modifies an existing note, the client opens the Note object in the same way that it opens any Message object, as specified in [\[MS-OXCMSG\]](#) section 3.1.4.1. The client then modifies any of the properties in accordance with the requirements in section [2.2](#) and saves the Note object as specified in [\[MS-OXCMSG\]](#) section 3.1.4.3.

3.1.4.3 Deleting a Note Object

When a user deletes a note, the client deletes the Note object in the same way that it deletes any Message object, as specified in [\[MS-OXCMSG\]](#) section 3.1.4.3.

3.1.5 Message Processing Events and Sequencing Rules

None.

3.1.6 Timer Events

None.

3.1.7 Other Local Events

None.

3.2 Server Details

The server processes a client's requests regarding a Note object and in all other ways operates within the server role as specified in [\[MS-OXCMSG\]](#).

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 described in this document.

This protocol uses the abstract data model that is specified in [\[MS-OXCMSG\]](#) section 3.1.1 with the following adaptations:

- The Note object is an extension of the Message object.
- A Note object is created in the Notes folder, which is a special folder, unless the MUA explicitly specifies another folder. For details about special folders, see [\[MS-OXOSFLD\]](#).

3.2.2 Timers

None.

3.2.3 Initialization

None.

3.2.4 Higher-Layer Triggered Events

None.

3.2.5 Message Processing Events and Sequencing Rules

The server responds to client requests as specified in [\[MS-OXCMSG\]](#) section 3.2.5.

3.2.6 Timer Events

None.

3.2.7 Other Local Events

None.

4 Protocol Examples

4.1 Sample Note Object

Joe creates a Note object, types in his grocery list, and saves it. The following is a description of what a client might do to accomplish Joe's intentions and the responses a server might return. For information about **remote operations (ROPs)**, see [\[MS-OXCPRPT\]](#) and [\[MS-OXCMSG\]](#).

Before creating or manipulating Note objects, the client needs to ask the server to map **named properties** to **property IDs**. To request this mapping, the client sends a **RopGetPropertyIdsFromNames ROP request** ([\[MS-OXCROPS\]](#) section 2.2.8.1).

Property	Property set GUID	LID
PidLidNoteColor (section 2.2.1.1)	{0006200E-0000-0000-C000-000000000046}	0x00008B00
PidLidNoteWidth (section 2.2.1.2)	{0006200E-0000-0000-C000-000000000046}	0x00008B02
PidLidNoteHeight (section 2.2.1.3)	{0006200E-0000-0000-C000-000000000046}	0x00008B03
PidLidNoteX (section 2.2.1.4)	{0006200E-0000-0000-C000-000000000046}	0x00008B04
PidLidNoteY (section 2.2.1.5)	{0006200E-0000-0000-C000-000000000046}	0x00008B05

The server might respond with the following property IDs, which will be used in the example that follows. (The actual property IDs are at the discretion of the server.)

Property	Property ID
PidLidNoteColor	0x8046
PidLidNoteWidth	0x8047
PidLidNoteHeight	0x8048
PidLidNoteX	0x8049
PidLidNoteY	0x804A

To create a Note object, the client uses the **RopCreateMessage** ROP ([\[MS-OXCROPS\]](#) section 2.2.6.2). The server returns a success code and a **handle** to a Message object.

After Joe has input his content for the Note object, the client transmits the properties of the Note object to the server by using the **RopSetProperties** ROP ([\[MS-OXCROPS\]](#) section 2.2.8.6). The properties that are set on the Note object are shown in the following table. For information about **property types** in the following table, see [\[MS-OXCDATA\]](#) section 2.11.1.

Property	Property ID	Property type	Value
PidLidNoteColor	0x8046	0x0003 (PtypInteger32)	0x00000003
PidLidNoteWidth	0x8047	0x0003	0x000000C8
PidLidNoteHeight	0x8048	0x0003	0x000000A6

Property	Property ID	Property type	Value
PidLidNoteX	0x8049	0x0003	0x0000006E
PidLidNoteY	0x804A	0x0003	0x0000006E
PidTagIconIndex ([MS-OXOMSG] section 2.2.1.10)	0x1080	0x0003	0x00000303
PidTagMessageClass ([MS-OXCMSG] section 2.2.1.3)	0x001A	0x001F (PtypString)	"IPM.StickyNote"
PidTagNormalizedSubject ([MS-OXCMSG] section 2.2.1.10)	0x0E1D	0x001F	"Grocery List"
PidTagSubjectPrefix ([MS-OXCMSG] section 2.2.1.9)	0x003D	0x001F	"" (null)
PidTagBody ([MS-OXCMSG] section 2.2.1.50.1)	0x1000	0x001F	"Grocery List: Celery Broccoli"

When Joe is ready to save his changes, the client commits the properties on the server by using the **RopSaveChangesMessage** ROP ([\[MS-OXCROPS\]](#) section 2.2.6.3) and then releases the Note object by using the **RopRelease** ROP ([\[MS-OXCROPS\]](#) section 2.2.15.3).

The values of some properties of the Message object will change during the execution of the **RopSaveChangesMessage** ROP, but the properties specified in this document will not change.

5 Security

5.1 Security Considerations for Implementers

There are no special security considerations specific to the Note Object Protocol. General security considerations pertaining to the underlying transport apply, as described in [\[MS-OXCMSG\]](#).

5.2 Index of Security Parameters

None.

6 Appendix A: Product Behavior

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

- Microsoft® Exchange Server 2003
- Microsoft® Exchange Server 2007
- Microsoft® Exchange Server 2010
- Microsoft® Exchange Server 2013
- Microsoft® Office Outlook® 2003
- Microsoft® Office Outlook® 2007
- Microsoft® Outlook® 2010
- Microsoft® Outlook® 2013

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 2.2.1.1:](#) Office Outlook 2003 SP3 will always use the **PidLidNoteColor** property to determine the background color, regardless of the existence or value of the **PidNameKeywords** property ([\[MS-OXCMSG\]](#) section 2.2.1.17). Office Outlook 2007 SP1 ignores the **PidLidNoteColor** property if the item has the **PidNameKeywords** property set also. In that case, the background color is the color associated with the first keyword listed, as described in [\[MS-OXOCFG\]](#).

[<2> Section 2.2.2.1:](#) Office Outlook 2003 SP3 and Office Outlook 2007 SP1 set encapsulated **plain text** as a **Rich Text Format (RTF)** for the message body. For more information, see [\[MS-OXRTFEX\]](#) and [\[MS-OXCMSG\]](#).

[<3> Section 2.2.2.4:](#) Office Outlook 2007 always sets this property to the first line of the message body.

7 Change Tracking

This section identifies changes that were made to the [MS-OXONOTE] protocol document between the July 2012 and October 2012 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.

- 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
1.2.2 Informative References	Added the reference [MS-OXPROTO].	N	Content updated.
1.4 Relationship to Other Protocols	Added informative reference information for overview of relationships between this and other protocols.	N	Content updated.

8 Index

A

Abstract data model
[client](#) 11
[server](#) 12

Additional property constraints
[Attachment objects](#) 10
[best body properties](#) 9
[PidTagIconIndex property](#) 9
[PidTagMessageClass property](#) 9
[PidTagNormalizedSubject property](#) 9
[recipients](#) 9

[Additional Property Constraints message](#) 9
[Applicability](#) 7
[Attachment objects additional property constraints](#) 10

B

[Best body properties additional property constraints](#) 9

C

[Capability negotiation](#) 7
[Change tracking](#) 18

Client
[abstract data model](#) 11
[initialization](#) 11
[message processing](#) 12
[other local events](#) 12
[overview](#) 11
[sequencing rules](#) 12
[timer events](#) 12
[timers](#) 11

Client - higher-layer triggered events
[creating a Note object](#) 11
[deleting a Note object](#) 11
[modifying a Note object](#) 11

D

Data model - abstract
[client](#) 11
[server](#) 12

E

Examples
[sample Note object](#) 14

F

[Fields - vendor-extensible](#) 7

G

[Glossary](#) 5

H

Higher-layer triggered events
[server](#) 12

Higher-layer triggered events - client
[creating a Note object](#) 11
[deleting a Note object](#) 11
[modifying a Note object](#) 11

I

[Implementer - security considerations](#) 16
[Index of security parameters](#) 16
[Informative references](#) 6

Initialization
[client](#) 11
[server](#) 12
[Introduction](#) 5

M

Message processing
[client](#) 12
[server](#) 12

[Message syntax](#) 8

Messages
[Additional Property Constraints](#) 9
[message syntax](#) 8
[Note Object Properties](#) 8
[transport](#) 8

N

[Normative references](#) 5

Note object properties
[PidLidNoteColor property](#) 8
[PidLidNoteHeight property](#) 8
[PidLidNoteWidth property](#) 8
[PidLidNoteX property](#) 9
[PidLidNoteY property](#) 9
[Note Object Properties message](#) 8

O

Other local events
[client](#) 12
[server](#) 13
[Overview \(synopsis\)](#) 6

P

[Parameters - security index](#) 16
[PidLidNoteColor Note object property](#) 8
[PidLidNoteHeight Note object property](#) 8
[PidLidNoteWidth Note object property](#) 8
[PidLidNoteX Note object property](#) 9
[PidLidNoteY Note object property](#) 9

[PidTagIconIndex property additional property constraints](#) 9
[PidTagMessageClass property additional property constraints](#) 9
[PidTagNormalizedSubject property additional property constraints](#) 9
[Preconditions](#) 7
[Prerequisites](#) 7
[Product behavior](#) 17

R

[Recipients additional property constraints](#) 9
[References](#) 5
 [informative](#) 6
 [normative](#) 5
[Relationship to other protocols](#) 6

S

[Sample Note object example](#) 14
Security
 [implementer considerations](#) 16
 [parameter index](#) 16
Sequencing rules
 [client](#) 12
 [server](#) 12
Server
 [abstract data model](#) 12
 [higher-layer triggered events](#) 12
 [initialization](#) 12
 [message processing](#) 12
 [other local events](#) 13
 [overview](#) 12
 [sequencing rules](#) 12
 [timer events](#) 12
 [timers](#) 12
[Standards assignments](#) 7

T

Timer events
 [client](#) 12
 [server](#) 12
Timers
 [client](#) 11
 [server](#) 12
[Tracking changes](#) 18
[Transport](#) 8
Triggered events - client
 [creating a Note object](#) 11
 [deleting a Note object](#) 11
 [modifying a Note object](#) 11
Triggered events - higher-layer
 [server](#) 12

V

[Vendor-extensible fields](#) 7
[Versioning](#) 7