[MS-OXSMTP]:
Simple Mail Transfer Protocol (SMTP) Extensions

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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	3.1.0	Minor	Updated the technical content.
02/10/2010	3.2.0	Minor	Updated the technical content.
05/05/2010	3.3.0	Minor	Updated the technical content.
08/04/2010	4.0	Major	Significantly changed the technical content.
11/03/2010	4.0	No change	No changes to the meaning, language, or formatting of the technical content.
03/18/2011	4.1	Minor	Clarified the meaning of the technical content.
08/05/2011	5.0	Major	Significantly changed the technical content.
10/07/2011	5.0	No change	No changes to the meaning, language, or formatting of the technical content.
01/20/2012	6.0	Major	Significantly changed the technical content.
04/27/2012	6.1	Minor	Clarified the meaning of the technical content.
07/16/2012	6.1	No change	No changes to the meaning, language, or formatting of the technical content.
10/08/2012	7.0	Major	Significantly changed the technical content.
02/11/2013	7.1	Minor	Clarified the meaning of the technical content.
07/26/2013	8.0	Major	Significantly changed the technical content.

Table of Contents

1 Introduction

The Simple Mail Transfer Protocol (SMTP) Extensions extend SMTP standards to facilitate authentication negotiation between a client and a server and to enable the server to close connections that exceed configured thresholds.

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]:

Augmented Backus-Naur Form (ABNF)
NT LAN Manager (NTLM) Authentication Protocol
SASL
Transmission Control Protocol (TCP)

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

Simple Mail Transfer Protocol (SMTP)

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.

[RFC2034] Freed, N., "SMTP Service Extension for Returning Enhanced Error Codes", RFC 2034, October 1996, http://www.rfc-editor.org/rfc/rfc2034.txt

[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

[RFC2554] Myers, J., "SMTP Service Extension for Authentication", RFC 2554, March, 1999, http://www.ietf.org/rfc/rfc2554.txt

[RFC3030] Vaudreuil, G., "SMTP Service Extensions for Transmission of Large and Binary MIME Messages", RFC 3030, December 2000, http://www.rfc-editor.org/rfc/rfc3030.txt

[RFC4954] Siemborski, R., and Melnikov, A., Eds., "SMTP Service Extension for Authentication", RFC 4954, July 2007, http://www.rfc-editor.org/rfc/rfc4954.txt

[RFC5321] Klensin, J., "Simple Mail Transfer Protocol", RFC 5321, October 2008, http://www.ietf.org/rfc/rfc5321.txt

1.2.2 Informative References

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

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

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

[MS-SMTPNTLM] Microsoft Corporation, "NT LAN Manager (NTLM) Authentication: Simple Mail Transfer Protocol (SMTP) Extension".

[MS-XLOGIN] Microsoft Corporation, "Simple Mail Transfer Protocol (SMTP) AUTH LOGIN Extension".

[RFC1870] Klensin, J., Freed, N., Ed., and Moore, K., "SMTP Service Extension for Message Size Declaration", STD 10, RFC 1870, November 1995, http://www.rfc-editor.org/rfc/rfc1870.txt

[RFC3207] Hoffman, P., "SMTP Service Extension for Secure SMTP over Transport Layer Security", RFC 3207, February 2002, http://www.rfc-editor.org/rfc/rfc3207.txt

[RFC4409] Gellens, R., and Klensin, J., "Message Submission for Mail", RFC 4409, April 2006, http://www.rfc-editor.org/rfc/rfc4409.txt

[RFC5322] Resnick, P., Ed., "Internet Message Format", RFC 5322, October 2008, http://www.ietf.org/rfc/rfc5322.txt

1.3 Overview

This set of extensions enables additional features and communication between an **SMTP** client and server.

These extensions define the relaxed AUTH command extension, which extends [RFC4954] to provide an alternative response format for the first server challenge which allows the server to verify that it supports the requested **Simple Authentication and Security Layer (SASL)** mechanism.

These extensions define scenarios where the server can close connections that are consuming too many resources.

1.4 Relationship to Other Protocols

The SMTP Extensions extend [RFC5321], [RFC4954], and other related extensions.

The Relaxed AUTH Command Extension is used with SASL mechanisms, such as the NT LAN Manager (NTLM) Authentication: Simple Mail Transfer Protocol (SMTP) Extension specified in [MS-SMTPNTLM], that require the client to provide an initial response before the server can issue a challenge.

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

1.5 Prerequisites/Preconditions

None.

1.6 Applicability Statement

The SMTP Extensions are applicable to scenarios in which clients will be authenticating to and submitting email messages directly to a server. This specification does not cover how SMTP transport agents affect or alter messages on the server.

1.7 Versioning and Capability Negotiation

The SMTP Extensions introduce no new versioning mechanisms beyond those that exist in SMTP, as described in [RFC5321].

Negotiation of SMTP options is specified in [RFC5321] section 4.1.1.1.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

The transport of the protocol that the SMTP Extensions extend is specified in [RFC5321] section 1.1.

2.2 Message Syntax

The syntax of the messages that are exchanged between the client and the server is specified in [RFC5321].

2.2.1 SASL_Mechanism_Supported

The **SASL_Mechanism_Supported** message is used in place of a server challenge that contains no data, as specified in [RFC4954] section 4. The format of this message is specified by the following **Augmented Backus-Naur Form (ABNF)** notation.

```
mechanism_supported = "334" SP mechanism SP "supported"
mechanism           = 1*20 mech_char
mech_char           = %x41-5A / %x30-39 / %x2D / %x5F
```

The value of the mechanism ABNF rule is equal to the mechanism argument passed in the **AUTH** command by the client.

3 Protocol Details

3.1 Client Details

The client role MUST conform to [RFC5321] for the exchange of messages with the server. The client role MUST conform to the SMTP Service Extension for Authentication specified in [RFC2554] and SHOULD<1> conform to SMTP Service Extension for Authentication specified in [RFC4954]. Throughout this section, SMTP Service Extension for Authentication refers to whichever version of the SMTP Service Extension for Authentication that the client supports.

3.1.1 Abstract Data Model

The client state model is specified in [RFC5321], with the additions in the SMTP Service Extension for Authentication.

3.1.2 Timers

None beyond what is specified in [RFC5321], with the additions in the SMTP Service Extension for Authentication.

3.1.3 Initialization

None.

3.1.4 Higher-Layer Triggered Events

None.

3.1.5 Message Processing Events and Sequencing Rules

Except as specified in section 3.1.5.1, the client MUST conform to [RFC5321], with the additions in the SMTP Service Extension for Authentication, for all message processing events and sequencing rules.

3.1.5.1 Receiving a SASL_Mechanism_Supported Message

When a client receives a **SASL_Mechanism_Supported** message, as specified in section 2.2.1, the client MUST verify that it sent an **AUTH** command with an initial-response. The client MAY also validate that the message contains the mechanism it sent in the **AUTH** command and fail the communication if such verification failed.

The client MUST then continue negotiation by sending a client response to the server with the content specified by the client's implementation of the negotiated SASL mechanism, as specified in the SMTP Service Extension for Authentication.

3.1.6 Timer Events

None beyond what is specified in [RFC5321], with the additions in the SMTP Service Extension for Authentication.

3.1.7 Other Local Events

None.

3.2 Server Details

The server role MUST conform to [RFC5321] for the exchange of messages with the client. The server role MUST conform to the SMTP Service Extension for Authentication specified in [RFC2554] and SHOULD<2> conform to the SMTP Service Extension for Authentication specified in [RFC4954]. Throughout this section, SMTP Service Extension for Authentication refers to whichever version of the SMTP Service Extension for Authentication that the server supports.

3.2.1 Abstract Data Model

The server state model is specified in [RFC5321], with the addition in the SMTP Service Extension for Authentication.

3.2.2 Timers

ConnectionTimer: A timer that identifies how much time has elapsed since a session was initiated.

ConnectionInactivityTimer: A timer that identifies how much time has elapsed since a client provided input. This timer is corresponds to the server time-out specified in [RFC5321] section 4.5.3.2.7.

3.2.3 Initialization

None.

3.2.4 Higher-Layer Triggered Events

None.

3.2.5 Message Processing Events and Sequencing Rules

Except as specified in section 3.2.5.1, the server role MUST be compliant with the message processing and sequencing rules that are specified in [RFC5321], with the additions in the SMTP Service Extension for Authentication.

3.2.5.1 Sending a SASL_Mechanism_Supported Message

When the server receives an **AUTH** command that does not include the optional initial response, as specified in [RFC4954] section 4, and the specified SASL mechanism provides an empty server string to include in the server challenge, the server SHOULD respond with a **SASL_Mechanism_Supported** message, as specified in section 2.2.1.

3.2.6 Timer Events

The **ConnectionTimeOut** timer event occurs when the **ConnectionTimer**, as specified in section 3.2.2, expires. The server MUST end the session as specified in [RFC5321] section 3.8.

The **ConnectionInactivityTimeOut** timer event occurs when the **ConnectionInactivityTimer**, as specified in section 3.2.2, expires. The server MUST end the session as specified in [RFC5321] section 3.8.

3.2.7 Other Local Events

ConnectionEstablished event: Occurs when a **TCP** connection is established to the server on the configured SMTP port. The server MUST initialize a **ConnectionTimer**, as specified in section 3.2.2,

for each connection. If the server is a gateway server, as specified in [RFC5321] section 2.3.10, the **ConnectionTimer** MUST be set to 5 minutes. If the server is a relay server, as specified in [RFC5321] section 2.3.10, the **ConncectionTimer** MUST be set to 10 minutes. The server MUST initialize a **ConnectionInactivityTimer**, as specified in section 3.2.2, for each connection. The **ConnectionInactivityTimer** is set to a value configured by the administrator.

CommandReceived event: Occurs when the server receives a command from the client. The server MUST reset the **ConnectionInactivityTimer** associated with the client's TCP connection to the timeout value configured by the administrator.

MaxHopCount event: Occurs when the number of **Received** header fields, as specified in [RFC5321] section 6.3, exceeds the configured maximum. The SMTP response code MUST indicate a permanent failure, as specified in [RFC5321] section 4.2.1. This response is sent at the end of a **DATA** command, as specified in [RFC5321] section 4.1.1.4, or a **BDAT** command, as specified in [RFC3030].

MaxLocalHopCount event: Occurs when the server has received the message more than the configured maximum number of times. The SMTP response code MUST indicate a permanent failure, as specified in [RFC5321] section 4.2.1. This response is sent at the end of a **DATA** or **BDAT** command.

TooManyRecipients event: Occurs when the number of recipients exceeds the configured maximum. The SMTP response code MUST indicate a transient failure, as specified in [RFC5321] section 4.2.1. This response MUST be sent at the end of a **RCPT TO** command, as specified in [RFC5321] section 4.1.1.3.

MessageRateLimitExceeded event: Occurs when the message submission rate for a client has exceeded the configured limit. The SMTP response code MUST be 421, as specified in [RFC5321] section 4.2.2, and the enhanced status code, as specified in [RFC2034], MUST be 4.4.2. This response MUST be sent at the end of a **MAIL FROM** command, as specified in [RFC5321] section 4.1.1.2. The server MUST end the session.

HeaderSizeExceeded event: Occurs when the message header size exceeds the configured size limit. The SMTP response code MUST be 552 and the enhanced status code MUST be 5.3.4. This response MUST be sent at the end of a **DATA** or **BDAT** command.

MessageSizeExceeded event: Occurs when the message size exceeds the configured size limit. The SMTP response code MUST be 552 and the enhanced status code MUST be 5.3.4. This response MUST be sent at the end of a **DATA** or **BDAT** command.

ProtocolViolationCount event: Occurs when the configured maximum number of logon or protocol errors is exceeded. The SMTP response code MUST be 421 and the enhanced status code MUST be 4.7.0. The server MUST end the session.

OutOfResources event: Occurs when a client initiates a TCP connection to the server and the server is low on memory or disk space. The SMTP response code MUST be 452 and the enhanced status code MUST be 4.3.1.

NewConnectionNotAvailable event: Occurs when an SMTP server cannot process a new connection. It indicates that the process has stopped responding or is in a crashed condition. The SMTP response code MUST be 421 and the enhanced status code MUST be 4.4.2. The server MUST end the session.

BindingNotConfigured event: Occurs when an SMTP server is not configured to accept connections from a client at a specific IP address or from the specific user. The SMTP response code MUST be 421 and the enhanced status code MUST be 4.3.2. The server MUST end the session.

ConnectionCountExceeded event: Occurs when an SMTP server has exceeded the configured maximum concurrent inbound connections. The SMTP response code MUST be 421 and the enhanced status code MUST be 4.3.2. The server MUST end the session.

ConnectionCountPerSource event: Occurs when an SMTP server has exceeded the configured limit on inbound connections for an IP address. The SMTP response code MUST be 421 and the enhanced status code MUST be 4.3.2. The server MUST end the session.

IPAddressNotAllowed event: Occurs when a gateway SMTP server binding receives a connection from an IP address that the server has been configured to not accept connections from. The SMTP response code MUST be 550 and the enhanced status code MUST be 5.7.1.

AcknowledgementDelay event: Occurs when the server waits longer than the configured time limit for a mail item to be delivered to the next hop. This event occurs after the end of **DATA** or **BDAT LAST** command, as specified in [RFC3030] section 2. If the **AcknowledgementDelay** event occurs, the server MUST send acknowledgment of receiving the mail item even if transport has not delivered the item to the next hop. The server sends the response as specified in [RFC5321] and processes the next command. The server state does not change.

Tarpit event: Occurs at the end of a command when the server sends an error message to an unauthenticated user, and once again if the same client connects to the server. The server MUST ignore connection attempts for 5 seconds and then send the response to the client. The server sends the response as specified in [RFC5321] and processes the next command. The server state does not change.

4 Protocol Examples

The following sequence diagram shows an example of an authentication exchange that uses the **SASL_Mechanism_Supported** message described in section 2.2.1. In this example, the client requests authentication using the NT LAN Manager (NTLM) Authentication: Simple Mail Transfer Protocol (SMTP) Extension, as described in [MS-SMTPNTLM].

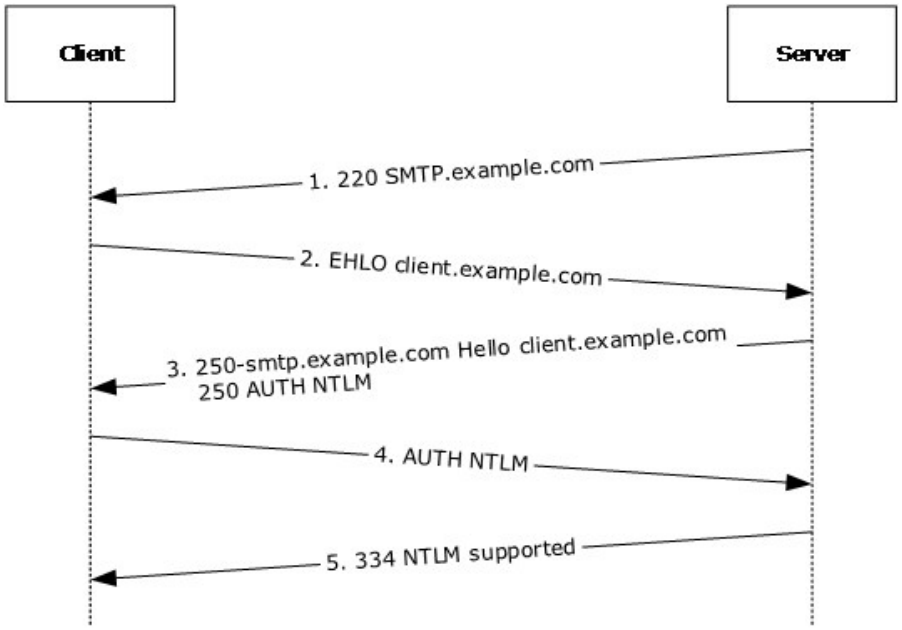

Figure 1: Example authentication exchange

1. The initial response by the SMTP server ("220 SMTP.example.com") is the greeting by the server as specified in [RFC5321].
2. The client sends the **EHLO** command.
3. The server responds with, among other things, an indication of support for **NTLM** authentication.
4. The client issues the **AUTH** NTLM command, omitting the initial response.
5. The server responds with the **SASL_Mechanism_Supported** message.

5 Security

5.1 Security Considerations for Implementers

Security considerations are described in [RFC1870] section 9, [RFC2034] section 7, [RFC3207] section 6, [RFC4409] section 9, [RFC4954] section 9, [RFC5321] section 7, [RFC5322] section 5, [MS-SMTPNTLM], and [MS-XLOGIN] section 5.1.

5.2 Index of Security Parameters

Security parameters for message submission authentication are described in [RFC4409].

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
- Microsoft .NET Framework 2.0
- Microsoft .NET Framework 3.5
- Microsoft .NET Framework 4
- Microsoft .NET Framework 4.5
- Windows 2000 Professional operating system
- Windows XP operating system
- Windows Vista operating system
- Windows 7 operating system
- Windows 8 operating system
- Windows Blue
- Windows 2000 Server operating system
- Windows Server 2003 operating system
- Windows Server 2008 operating system
- Windows Server 2012 operating system
- Windows Server "vNext"

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 3.1: Windows 2000 Professional, Windows XP, Windows Vista, Windows 7, Windows 8, Windows Blue, Windows 2000 Server, Windows Server 2003, Windows Server 2008, Windows Server 2012, and Windows Server "vNext" do not conform to [RFC4954].

<2> Section 3.2: Windows 2000 Professional, Windows XP, Windows 2000 Server, Windows Server 2003, Windows Server 2008, Windows Server 2012, and Windows Server "vNext" do not conform to [RFC4954].

7 Change Tracking

This section identifies changes that were made to the [MS-OXSMTP] protocol document between the February 2013 and July 2013 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
1.1 Glossary	Added "Augmented Backus-Naur Form (ABNF)", "NT LAN Manager (NTLM) Authentication Protocol", and "SASL" to the list of terms defined in [MS-GLOS].	N	Content updated.
1.1 Glossary	Removed "Message Submission Agent (MSA)" from the list of terms specific to this document.	N	Content updated.
1.2.1 Normative References	Added [RFC2554] to the list of references.	N	Content updated.
1.2.1 Normative References	Removed the references [RFC1652], [RFC1869], [RFC1891], [RFC2460], [RFC2920], and [RFC791].	Y	Content updated.
1.2.1 Normative References	Moved the references [MS-SMTPNTLM], [MS-XLOGIN], [RFC1870], [RFC2034], [RFC3207], [RFC4409], and [RFC5322] to the Informative References section.	Y	Content updated.
1.2.2 Informative References	Moved the references [MS-SMTPNTLM], [MS-XLOGIN], [RFC1870], [RFC2034], [RFC3207], [RFC4409], and [RFC5322] from the Normative References section.	Y	Content updated.
1.3 Overview	Added description of the alternative server response format for the AUTH command.	N	Content updated.
1.5 Prerequisites/Preconditions	Removed prerequisites and preconditions.	N	Content updated.

Section	Tracking number (if applicable) and description	Major change (Y or N)	Change type
1.9 Standards Assignments	Removed standards assignments.	N	Content updated.
2.2 Message Syntax	Removed description of optional message strings and codes.	N	Content updated.
2.2.1 SASL_Mechanism_Supported	Added section to specify the SASL_Mechanism_Supported message.	Y	New content added.
3 Protocol Details	Revised statement regarding conformance with RFCs to use normative language.	Y	Content updated.
3.1.1 Abstract Data Model	Removed normative requirement regarding the client state model.	Y	Content updated.
3.1.2 Timers	Added reference to [RFC5321].	N	Content updated.
3.1.5 Message Processing Events and Sequencing Rules	Specified that the client MUST conform to [RFC5321].	Y	Content updated.
3.1.5.1 Receiving a SASL_Mechanism_Supported Message	Added section to specify client requirements for authentication.	Y	New content added.
3.2 Server Details	Clarified that there are additional requirements for conforming with [RFC4954].	Y	Content updated.
3.2 Server Details	Added specifications to which the server role MUST conform.	N	Content updated.
3.2.2 Timers	Moved server behavior when timer expires to the "Timer Events" section.	N	Content updated.
3.2.3 Initialization	Replaced content with "None."	N	Content updated.
3.2.5 Message Processing Events and Sequencing Rules	Removed ABNF notation and tables of status codes and text.	Y	Content updated.
3.2.5.1 Sending a SASL_Mechanism_Supported Message	Added new section to specify server requirements for authentication.	Y	New content added.
3.2.6 Timer Events	Moved server behavior when timer expires from the "Timers" section.	N	Content updated.
3.2.7 Other Local Events	Added the ConnectionEstablished and CommandReceived events.	Y	Content updated.
3.2.7	Removed specific response text from the	Y	Content

Section	Tracking number (if applicable) and description	Major change (Y or N)	Change type
Other Local Events	description of events.		updated.
4 Protocol Examples	Added example of an authentication exchange using the SASL_Mechanism_Supported message.	N	Content updated.
5.1 Security Considerations for Implementers	Provided specific references for specifications that contain security considerations.	N	Content updated.
6 Appendix A: Product Behavior	Added Windows Blue and Windows Server "vNext" to the list of products.	Y	Content updated.
6 Appendix A: Product Behavior	Added Microsoft .NET Framework 2.0, Microsoft .NET Framework 3.5, Microsoft .NET Framework 4, and Microsoft .NET Framework 4.5 to the list of products.	Y	Content updated.
6 Appendix A: Product Behavior	Added Windows 2000 Professional operating system, Windows XP operating system, Windows Vista operating system, Windows 7 operating system, and Windows 8 operating system to the list of products.	Y	Content updated.
6 Appendix A: Product Behavior	Added Windows 2000 Server operating system, Windows Server 2003 operating system, Windows Server 2008 operating system, and Windows Server 2012 operating system to the list of products.	Y	Content updated.
	Changed the title of the document from "Simple Mail Transfer Protocol (SMTP) Mail Submission Extensions" to "Simple Mail Transfer Protocol (SMTP) Extensions".	N	Content updated.

8 Index

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