



White Paper: Cisco Unity VPIM v2 Compliance (Cisco Unity Version 4.0(1) and Later)

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This white paper describes how Cisco Unity conforms with the Voice Profile for Internet Mail (VPIM) version 2 specification for exchanging voice messages with other VPIM-compliant voice messaging systems. The conformance information is intended to be used to help determine the behavior you can expect when setting up VPIM for interoperability between Cisco Unity and a third-party voice messaging system that also complies with the VPIM v2 specification.



Note

For Cisco Unity with Exchange, VPIM Networking is available in version 4.0(1) and later; for Cisco Unity with Domino, VPIM Networking is available in version 4.0(5) and later.

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Overview

VPIM is a protocol for exchanging MIME-encoded voice messages between messaging systems by using SMTP as a transport mechanism. The protocol does not define how voice messages are presented to end-users or client applications.

Cisco Systems, Inc. filed the Declaration of Compatibility No. 02-002 for Cisco Unity in accordance with the VPIM v2 specification and the guidelines set forth by the Electronic Messaging Association Voice Messaging Committee (EMA VMC) VPIM Work Group. This statement was filed based on Cisco Unity version 4.0(1) with Microsoft Exchange 2000.



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The Declaration of Compatibility states that Cisco Unity is VPIM Conformant based on the following documents, which can be obtained from the Open Group VPIM website (vpim.org):

Table 1 *VPIM v2 Compliance Documents*

Document Identifier/Title	Edition/Date of Issue
Internet RFC 2421—Voice Profile for Internet Mail, version 2	Draft 5/February 14, 2002
Voice Messaging Conformance: A Testing Process for VPIM Products	Version 1.3/July 28, 2000

Conformance to RFC-2421 Requirements

Claims of conformance are made based on two areas: content and transport. Content requirements define how VPIM-compliant systems should format and encode outgoing VPIM messages, and how they should interpret the contents of messages received from other systems. Transport requirements define the protocol exchanges necessary to reliably transmit and receive VPIM messages. Vendors can declare their VPIM systems to be VPIM Content Conformant, VPIM Transport Conformant, or both (referred to simply as VPIM Conformant).

Content Requirements

[Table 1](#) details the content requirements for messages that are generated by a VPIM messaging system. These requirements correspond to the entries marked as C (content) requirements in the VPIM version 2 Conformance table in Appendix A of RFC-2421. The Conformant column lists the conformance level claimed for Cisco Unity in declaration 02-002.

For Must, Should, or May requirements, a “Y” in the Conformant column indicates that Cisco Unity implements the functionality described in the requirement. For Should Not or Must Not requirements, a “Y” indicates that Cisco Unity has not implemented the functionality, in compliance with the specification.

Table 2 *RFC-2421 Content Requirements Conformance for Cisco Unity*

Feature	RFC-2421 Section	Must	Should	May	Should Not	Must Not	Conformant
Message Addressing Formats							
Use DNS host names	4.1	X					Y
Use only numbers in mailbox IDs	4.1.1		X				Y
Numbers in mailbox IDs follow E.164	4.1.1		X				[not required]
Use alpha-numeric mailbox IDs	4.1.1			X			[not required]
Support of postmaster@domain	4.1.2	X					Y
Support of non-mail-user@domain	4.1.2		X				Y
Support of distribution lists	4.1.3			X			Y
Message Header Fields: Sending Outbound Messages							

Table 2 *RFC-2421 Content Requirements Conformance for Cisco Unity (continued)*

Feature	RFC-2421 Section	Must	Should	May	Should Not	Must Not	Conformant
From	4.2.1	X					Y
Addition of text name	4.2.1		X				Y
Same value as Mail From	4.2.1		X				[not required]
To	4.2.2		X				Y
CC	4.2.3			X			Y
Date	4.2.4	X					Y
Sender	4.2.5			X			[not required]
Return-Path	4.2.6					X	Y
Message-ID	4.2.7	X					Y
Reply-To	4.2.8				X		Y
Received	4.2.9	X					Y
MIME Version: 1.0 (Voice 2.0)	4.2.10		X				Y
Content-Type	4.2.11	X					Y
Content-Transfer-Encoding	4.2.12	X					Y
Sensitivity	4.2.13			X			Y
Importance	4.2.14			X			Y
Subject	4.2.15		X				Y
Disposition-Notification-To	4.7		X				Y
Other headers	4.2			X			[not required] ¹
Message Header Fields: Receiving Inbound Messages							
From	4.2.1	X					Y
Present text personal name	4.2.1			X			Y
To	4.2.2	X					Y
CC	4.2.3			X			Y
Date	4.2.4	X					Y
Conversion to local time	4.2.4		X				Y
Sender	4.2.5			X			[not required]
Return-Path	4.2.6		X				Y
Message ID	4.2.7			X			[not required]
MDN requested	4.2.7	X					Y
Reply-To	4.2.8			X			[not required]
Received	4.2.9			X			Y
MIME Version: 1.0 (Voice 2.0)	4.2.10		X				Y
Content Type	4.2.11	X					Y

Table 2 *RFC-2421 Content Requirements Conformance for Cisco Unity (continued)*

Feature	RFC-2421 Section	Must	Should	May	Should Not	Must Not	Conformant
Content-Transfer-Encoding	4.2.12	X					Y
Sensitivity	4.2.13	X					Y
Importance	4.2.14			X			Y
Subject	4.2.15			X			Y
Disposition-Notification-To	4.7		X				Y
Other headers	4.2	X					Y ¹
Message Content Encoding: Sending Outbound Audio/Fax Contents							
7BIT	4.2.12					X	Y
8BIT	4.2.12					X	Y
Quoted printable	4.2.12					X	Y
Base64	4.2.12	X					Y
Binary	4.2.12		X				[not required]
Message Content Encoding: Receiving Inbound Messages							
7BIT	4.2.12	X					Y
8BIT	4.2.12	X					Y
Quoted printable	4.2.12	X					Y
Base64	4.2.12	X					Y
Binary	4.2.12	X					Y
Message Content Types: Sending Outbound Messages							
Multipart/Voice-Message	4.4.1	X					Y
Message/RFC822	4.4.2		X				[not required]
Audio/32KADPCM	4.4.3	X					Y
Content-Description	4.3.1			X			Y
Content-Disposition	4.3.2	X					Y
Content-Duration	4.3.3			X			[not required]
Content-Language	4.3.4			X			[not required]
Image/TIFF; Application=Faxbw	4.4.4	X					Y
Text/Directory	4.5.2				X		Y
Text/Plain	4.5.4				X		Y
Audio/* or Image/* (other encodings)	4.5.3				X		Y
Other contents	4.5					X	Y
Multipart/Mixed	4.5.1			X			[not required]
Text/Plain	4.5.4			X			[not required]

Table 2

RFC-2421 Content Requirements Conformance for Cisco Unity (continued)

Feature	RFC-2421 Section	Must	Should	May	Should Not	Must Not	Conformant
Multipart/Report	4.6, 4.7	X					Y
Human-readable part is voice	4.6, 4.7		X				Y
Human-readable part is text	4.6, 4.7			X			Y
Message/Delivery-Status	4.6	X					Y
Message/Disposition-Notification	4.7		X				[not required]
Other contents	4.5				X		Y
Message Content Types: Receiving Inbound Messages							
Multipart/Voice-Message	4.4.1	X					Y
Message/RFC822	4.4.2	X					Y
Audio/32KADPCM	4.4.3	X					Y
Content-Description	4.3.1			X			Y
Content-Disposition	4.3.2		X				Y
Content-Duration	4.3.3			X			[not required]
Content-Language	4.3.4			X			[not required]
Image/TIFF; Application=Faxbw	4.4.4		X				Y
Text/Directory	4.5.2	X					Y
Text/Plain	4.5.4			X			Y
Audio/* or Image/* (other encodings)	4.5.3			X			Y
Other contents	4.5			X			[not required]
Multipart/Mixed	4.5.1			X			[not required]
Text/Plain	4.5.4	X					Y
Multipart/Report	4.6, 4.7	X					Y
Human-readable part is voice	4.6, 4.7	X					Y
Human-readable part is text	4.6, 4.7	X					Y
Message/Delivery-Status	4.6	X					Y
Message/Disposition-Notification	4.7		X				[not required]
Other contents	4.5			X			[not required]
Message Content Types: Forwarded Messages							
Use Message/RFC822 construct	4.8		X				[not required]
Simulate headers if none available	4.8		X				[not required]
Message Content Types: Reply Messages							
Reply messages	4.9	X					Y

Table 2 *RFC-2421 Content Requirements Conformance for Cisco Unity (continued)*

Feature	RFC-2421 Section	Must	Should	May	Should Not	Must Not	Conformant
Send to Reply-to, else From address	4.2.8			X			Y
Send to non-mailer-user	4.9				X		Y
Message Content Types: Notifications							
Use multipart/report format	4.6, 4.7	X					Y
Always send error on non-delivery	4.6	X					Y
Send error messages to return-path	4.2.6	X					Y
Directory Address Resolution							
Provide facility to resolve addresses	6.0		X				Y
Use headers to populate local directory	6.0			X			[not required] ²

1. Networked broadcast messaging, added for Cisco Unity with Microsoft Exchange in 4.0(5), uses custom MIME fields of format X-Cisco-* in the headers of broadcast messages transmitted via VPIM.
2. The automatic VPIM directory updates feature, added for Cisco Unity with Microsoft Exchange in 4.0(5), allows you to configure a VPIM bridgehead system to automatically create, modify, or delete VPIM subscribers based on information contained in the message header or vCard.

Transport Requirements

[Table 3](#) details the transport requirements for messages sent by a VPIM messaging system. These requirements correspond to the entries marked as T (transport) requirements in the VPIM version 2 Conformance table in Appendix A of RFC-2421. The Conformant column lists the conformance level claimed for Cisco Unity in declaration 02-002.

For Must, Should, or May requirements, a “Y” in the Conformant column indicates that Cisco Unity implements the functionality described in the requirement. For Should Not or Must Not requirements, a “Y” indicates that Cisco Unity has not implemented the functionality, in compliance with the specification.



Note

Cisco Unity relies on the message system (Microsoft Exchange or IBM Lotus Domino) for compliance with the Transport requirements of the VPIM v2 specification. For the purpose of the compliance statement filed with the VPIM Open Group, Microsoft Exchange 2000 was used.

Table 3 *RFC-2421 Transport Requirements Conformance for Cisco Unity*

Feature	RFC-2421 Section	Must	Should	May	Should Not	Must Not	Conformant
Message Transport Protocol: Base ESMTP Commands							
HELO	5.1	X					Y

Table 3

RFC-2421 Transport Requirements Conformance for Cisco Unity (continued)

Feature	RFC-2421 Section	Must	Should	May	Should Not	Must Not	Conformant
MAIL FROM	5.1	X					Y
RCPT TO	5.1	X					Y
DATA	5.1	X					Y
TURN	5.1					X	Y
QUIT	5.1	X					Y
RSET	5.1	X					Y
VERFY	5.1			X			Y
EHLO	5.1	X					Y
BDAT	5.1			X			Y
Message Transport Protocol:ESMTP Keywords & Parameters							
DSN	5.2.1	X					Y
NOTIFY	5.2.1	X					Y
RET	5.2.1		X				Y
ENVID	5.2.1			X			Y
ORCPT	5.2.1			X			Y
SIZE	5.2.2	X					Y
ENHANCEDSTATUSCODES	5.2.3		X				Y
PIPELINING	5.2.4		X				Y
CHUNKING	5.2.5			X			Y
BINARYMIME	5.2.6			X			Y
Message Transport Protocol: ESMTP-SMTP Downgrading							
Send delivery report upon downgrade	5.3	X					Y
Management Protocols							
Network management	7.1			X			Y

Cisco Unity VPIM Conformance and Interoperability

Cisco Unity was declared VPIM Conformant based on the content and transport requirements and conformance listed in Table 2 and Table 3 for version 4.0(1) with Microsoft Exchange. In addition to this claim, Cisco supports VPIM interoperability with other VPIM v2 compliant voice messaging systems for the versions of Cisco Unity with Microsoft Exchange and Cisco Unity with IBM Lotus Domino that are detailed in the “Supported VPIM Messaging Systems” section of the *Cisco Unity 4.0 System Requirements, and Supported Hardware and Software*, available at http://www.cisco.com/univercd/cc/td/doc/product/voice/c_unity/sysreq/40_sysrq.htm. This document also lists version interoperability between Cisco Unity and other Cisco voice messaging products.

Cisco Unity Documentation

For descriptions and URLs of Cisco Unity documentation on Cisco.com, refer to the *Cisco Unity Documentation Guide*. The document is shipped with Cisco Unity and is available at http://www.cisco.com/univercd/cc/td/doc/product/voice/c_unity/about/aboutdoc.htm.

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