



SIP Compliance for Cisco Unity (All Versions of Cisco Unity)

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Cisco Unity 4.0(1) and later complies with the Session Initiation Protocol (SIP) RFC 2543 standard. This white paper contains the following sections:

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How SIP Integration with Cisco Unity Works

SIP is the Internet Engineering Task Force's (IETF's) standard for multimedia calls over IP. SIP is a peer-to-peer, ASCII-based protocol that uses requests and responses to establish, maintain, and terminate calls (or sessions) between two or more end points. A SIP network uses the following components.



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SIP proxy server	functions such as authentication, authorization, network access control, routing, reliable request retransmission, and security.
Redirect server	
Registrar server	
Phones	
Gateways	Provide call control. Gateways provide many services, the most common being a translation function between SIP call endpoints and other terminal types. This function includes translation between transmission formats and between communications procedures. In addition, the gateway translates between audio and video codecs and performs call setup and clearing on both the LAN side and the switched-circuit network side.

Cisco Unity accepts calls from a proxy server. Cisco Unity relies on a proxy server or call agent to authenticate calls.

SIP uses a request/response method to establish communications between various components in the network and to ultimately establish a conference (call or session) between two or more endpoints. A single call may involve several clients and servers.

Users in a SIP network are identified by:

- A unique phone or extension number.

- A unique SIP address, which is similar to an e-mail address and uses the format `sip:<userID>@<domain>`. The user ID can be either a user name or an E.164 address.

When a user initiates a call, a SIP request typically goes to a SIP server (either a proxy server or a redirect server). The request includes the caller's address (From) and the address of the called party (To).

SIP messages are in text format using ISO 10646 in UTF-8 encoding (like HTML). In addition to the address information, a SIP message contains a start-line specifying the method and the protocol, a number of header fields specifying call properties and service information, and an optional message body which can contain a session description.

The proxy servers that are qualified for integrating with Cisco Unity are listed in the *Session Initiation Protocol (SIP) Integration Guide*

http://www.cisco.com/en/US/products/sw/voicesw/ps2237/products_installation_and_configuration_guides_list.html.

SIP Methods

Method	Supported?	Comments
INVITE	Yes	
OPTIONS	Yes	Incoming only.

ACK	Yes	
BYE	Yes	
CANCEL	Yes	
REGISTER	Yes	Outgoing only.
REFER	Yes	Outgoing only.
NOTIFY	Yes	Used for message waiting indicators (MWIs); unsolicited NOTIFY.

SIP Responses

1xx Response—Information Responses

Response	Supported?	Comments
100 Trying	Yes	
180 Ringing	Yes	
181 Call Is Being Forwarded	See comment	Cisco Unity does not generate these responses. However, Cisco Unity does handle receiving them and processes the responses the same way it processes the 100 Trying response.
182 Queued		
183 Session Progress		

2xx Response—Successful Responses

200 OK	Yes	
202 Accepted	Yes	Cisco Unity does not generate this response. However, Cisco Unity does handle receiving it and processes the response the same way it processes the 200 OK response.

3xx Response—Redirection Responses

300 Multiple Choices	No	
301 Moved Permanently	No	
302 Moved Temporarily	No	
305 Use Proxy	No	
380 Alternate Service	No	

4xx Response—Request Failure Responses

Response	Supported?	Comments
409 Conflict	See comment	Cisco Unity does not generate these responses. For an incoming response, Cisco Unity initiates a graceful call disconnect.
410 Gone		
411 Length Required		
413 Request Entity Too Large		
414 Request—URL Too Long		
415 Unsupported Media		
420 Bad Extension		
480 Temporarily Unavailable		
481 Call Leg/Transaction Does Not Exist	Yes	Cisco Unity generates this response when it cannot match the response to an existing transaction (for example, the call has been terminated).
482 Loop Detected	See comment	Cisco Unity does not generate these responses. For an incoming response, Cisco Unity initiates a graceful call disconnect.
483 Too Many Hops		
484 Address Incomplete		
485 Ambiguous		
486 Busy Here	Yes	Upon receiving this response, Cisco Unity considers the call to be busy. Cisco Unity generates this response when all Cisco Unity lines are busy.

Response	Supported?	Comments

5xx Response—Server Failure Responses

Response	Supported?	Comments

6xx Response—Global Responses

Response	Supported?	Comments

SIP Header Fields

Header Field	Supported?	Comments

Header Field	Supported?	Comments

SIP Session Description Protocol (SDP) Usage

SDP Header	Supported?

Transport Layer Protocols

Protocol	Supported?

SIP Security

Encryption Mode	Security Method	Supported?

SIP DNS Records Usage

DNS Resource Record Type	Supported?

SIP DTMF Digit Transport

DTMF Digit Transport Type	Supported?

Codec Support

Codec Type	Supported?

Additional References

Session Initiation Protocol (SIP) Integration Guide for Cisco Unity

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