



SIP Trunking – Methods / Requests Responses

SIP Methods / Requests

There are fourteen SIP Request methods of which the first six are the most basic request / method types:

- **INVITE** = Establishes a session.
- **ACK** = Confirms an INVITE request.
- **BYE** = Ends a session.
- **CANCEL** = Cancels establishing of a session.
- **REGISTER** = Communicates user location (host name, IP).
- **OPTIONS** = Communicates information about the capabilities of the calling and receiving SIP phones.
- **PRACK** = Provisional Acknowledgement.
- **SUBSCRIBE** = Subscribes for Notification from the notifier.
- **NOTIFY** = Notifies the subscriber of a new event.
- **PUBLISH** = Publishes an event to the Server.
- **INFO** = Sends mid session information.
- **REFER** = Asks the recipient to issue call transfer.
- **MESSAGE** = Transports Instant Messages.
- **UPDATE** = Modifies the state of a session.

SIP Responses

There are six classes of SIP Responses. The responses give you an idea on how a call is progressing and whether it's been established or whether there were any failures.

High Level Classes

- **1xx** = Informational responses - Provisional
- **2xx** = Success responses - Final
- **3xx** = Redirection responses - Final
- **4XX** = Request failures - Final
- **5xx** = Server errors - Final
- **6xx** = Global failures - Final

1XX = Informational SIP Responses

Information responses usually occur when a SIP INVITE request was made to the SIP endpoint. The SIP endpoint can respond with multiple 1XX responses to inform the requester on how the call is progressing.

- **100 Trying** – Extended search is being performed so a forking proxy must send a 100 Trying response.
- **180 Ringing** – The Destination User Agent has received the INVITE message and is alerting the user of call.
- **181 Call Is Being Forwarded** – Optional, send by Server to indicate a call is being forwarded.
- **182 Queued** – Destination was temporarily unavailable, the server has queued the call until the destination is available.
- **183 Session Progress** – This response may be used to send extra information for a call which is still being set up.
- **199 Early Dialog Terminated** – Send by the User Agent Server to indicate that an early dialogue has been terminated.

2XX = Success Responses

Success responses, much like the HTTP protocol, usually occur when a the SIP endpoint has received confirmation that the INVITE request was successful and that the call will be answered.

- **200 OK** – Shows that the request was successful.
- **202 accepted** – Indicates that the request has been accepted for processing, mainly used for referrals.
- **204 No Notification** – Indicates that the request was successful but no response will be received.

3XX = Redirection Responses

3xx responses give information about the SIP endpoints new location (redirection), or about alternative services that might be able to satisfy the call.

- **300 Multiple Choices** – The address resolved to one of several options for the user or client to choose between.
- **301 Moved Permanently** – The original Request URI is no longer valid, the new address is given in the Contact header.
- **302 Moved Temporarily** – The client should try at the address in the Contact field.
- **305 Use Proxy** – The Contact field details a proxy that must be used to access the requested destination.
- **380 Alternative Service** – The call failed, but alternatives are detailed in the message body.

4XX = Request Failures

The 4xx responses are the **Client Error** responses. They are used to indicate that something went wrong while processing the INVITE request. The most frequent request seen is generally a 404 not found. Where the SIP endpoint doesn't believe the destination you are trying to reach exists.

- **400 Bad Request** – The request could not be understood due to malformed syntax.
- **401 Unauthorized** – The request requires user authentication. This response is issued by UASs and registrars.
- **402 Payment Required** – (Reserved for future use).
- **403 Forbidden** – The server understood the request, but is refusing to fulfil it.
- **404 Not Found** – The server has definitive information that the user does not exist at the (User not found).
- **405 Method Not Allowed** – The method specified in the Request-Line is understood, but not allowed.
- **406 Not Acceptable** – The resource is only capable of generating responses with unacceptable content.
- **407 Proxy Authentication Required** – The request requires user authentication.
- **408 Request Timeout** – Couldn't find the user in time.
- **409 Conflict** – User already registered (deprecated)
- **410 Gone** – The user existed once but is not available here any more.
- **411 Length Required** – The server will not accept the request without a valid content length (deprecated).
- **412 Conditional Request Failed** – The given precondition has not been met.
- **413 Request Entity Too Large** – Request body too large.
- **414 Request URI Too Long** – Server refuses to service the request, the Req-URI is longer than the server can interpret.
- **415 Unsupported Media Type** – Request body is in a non-supported format.

- **416 Unsupported URI Scheme** – Request-URI is unknown to the server.
- **417 Unknown Resource-Priority** – There was a resource-priority option tag, but no Resource-Priority header.
- **420 Bad Extension** – Bad SIP Protocol Extension used, not understood by the server.
- **421 Extension Required** – The server needs a specific extension not listed in the Supported header.
- **422 Session Interval Too Small** – The request contains a Session-Expires header field with a duration below the minimum.
- **423 Interval Too Brief** – Expiration time of the resource is too short.
- **424 Bad Location Information** – The request's location content was malformed or otherwise unsatisfactory.
- **428 Use Identity Header** – The server policy requires an Identity header, and one has not been provided.
- **429 Provide Referrer Identity** – The server did not receive a valid Referred-By token on the request.
- **430 Flow Failed** – A specific flow to a user agent has failed, although other flows may succeed.
- **433 Anonymity Disallowed** – The request has been rejected because it was anonymous.
- **436 Bad Identity Info** – The request has an Identity-Info header and the URI scheme contained cannot be de-referenced.
- **437 Unsupported Certificate** – The server was unable to validate a certificate for the domain that signed the request.
- **438 Invalid Identity Header** – Server obtained a valid certificate used to sign a request, was unable to verify the signature.
- **439 First Hop Lacks Outbound Support** – The first outbound proxy doesn't support the "outbound" feature.
- **440 Max-Breadth Exceeded** – If a SIP proxy determined a response context had insufficient Incoming Max-Breadth to carry out a desired parallel fork, and the proxy is unwilling/unable to compensate by forking serially or sending a redirect, that proxy MUST return a 440 response. A client receiving a 440 response can infer that its request did not reach all possible destinations.
- **469 Bad Info Package** – If a SIP UA receives an INFO request associated with an Info Package that the UA has not indicated willingness to receive, the UA MUST send a 469 response, which contains a Recv-Info header field with Info Packages for which UA is willing to receive INFO requests.
- **470 Consent Needed** – The source of the request did not have the permission of the recipient to make such a request.
- **480 Temporarily Unavailable** – Callee currently unavailable.
- **481 Call/Transaction Does Not Exist** – Server received a request that does not match any dialogue or transaction.
- **482 Loop Detected** – Server has detected a loop.
- **483 Too Many Hops** – Max-Forwards header has reached the value '0'.
- **484 Address Incomplete** – Request-URI incomplete.
- **485 Ambiguous** – Request-URI is ambiguous.
- **486 Busy Here** – Callee is busy.
- **487 Request Terminated** – Request has terminated by bye or cancel.
- **488 Not Acceptable Here** – Some aspects of the session description of the Request-URI are not acceptable.

- **489 Bad Event** – The server did not understand an event package specified in an Event header field.
- **491 Request Pending** – Server has some pending request from the same dialogue.
- **493 Undecipherable** – UndecipherableRequest contains an encrypted MIME body, which recipient can not decrypt.
- **494 Security Agreement Required** – The server has received a request that requires a negotiated security mechanism.

5XX = Server Errors

The 5xx responses are the **Server Error** responses. They are generated by the likes of proxy servers, location servers, and redirect servers.

- **500 Server Internal Error** – The server could not fulfill the request due to some unexpected condition.
- **501 Not Implemented** – The SIP request method is not implemented here.
- **502 Bad Gateway** – The server, received an invalid response from a downstream server while trying to fulfill a request.
- **503 Service Unavailable** – The server is in maintenance or is temporarily overloaded and cannot process the request.
- **504 Server Time-out** – The server tried to access another server while trying to process a request, no timely response.
- **505 Version Not Supported** – The SIP protocol version in the request is not supported by the server.
- **513 Message Too Large** – The request message length is longer than the server can process.
- **555 Push Notification Service Not Supported** – The server does not support the push notification serviced specified in the pn-provider SIP URI parameter.
- **580 Precondition Failure** – The server is unable or unwilling to meet some constraints specified in the offer.

6XX = Request Failures

The 6xx responses are the **Global Error** responses. They indicate that a server has definitive information about a particular user and not just the particular instance indicated by the Request-URI.

- **600 Busy Everywhere** – All possible destinations are busy.
- **603 Decline** – Destination cannot/don't wish to participate in the call, no alternative destinations.
- **604 Does Not Exist Anywhere** – The server has authoritative information that the requested user does not exist anywhere.
- **606 Not Acceptable** – The user's agent was contacted successfully but some aspects of the session description were not acceptable.
- **607 Unwanted** – The called party did not want his call from the calling party. Future attempts from the calling party are likely to be similarly rejected.