

SIP ALG modifies VoIP traffic (packets) and is enabled by default on many routers. When implemented correctly, SIP ALG modifies specific IP addresses in these packets, changing them from your local IP address to your public IP address. Unfortunately, in many routers it is poorly implemented and, instead of replacing only the specific IP addresses that need to be replaced, it replaces all of them, which then breaks SIP signaling. This poor implementation of SIP ALG can cause several issues, such as:

- Calls dropping after a set period of time
- Calls dropping when trying to retrieve the call from hold
- Calls dropping when being transferred
- Calls not being received
- Unable to make outbound calls
- Calls with no audio
- Calls with one way audio
- Other extensions continue ringing after call has been answered

SIP is the protocol being used for call setup and audio transmission. The call setup process that takes place uses SIP signaling between the phone and the server do a sort of handshake. Once the negotiation is complete the audio is transmitted as rtp. It appears that when someone is dialing out, a call comes in and disconnects the first call. As I mentioned before, this is very unusual and is most likely product of a device in the network trying to manage SIP transmissions. Without having packet captures to analyze I cannot tell you exactly what is taking place. In that past what I've found is services on a router, firewall or gateway device such as SIP transformations, stateful packet inspection and SIP ALG. These services are intended to help with VOIP but that is never the case. SIP transformations actually rewrites packets based on a route/DID table stored on the device, this never gives the desired effect. SIP ALG was designed to help with NAT related issues but instead only breaks SIP. Stateful packet inspection is common on most firewalls and adds security by inspecting packets to verify the source, destination, port number and other information that would be relevant to the session. Often times this only increases latency and introduces connectivity issues.