SCOPSERV
INTERNATIONAL INC.

ScopTEL™ IP PBX Software

Configuring ScopTEL for NAT

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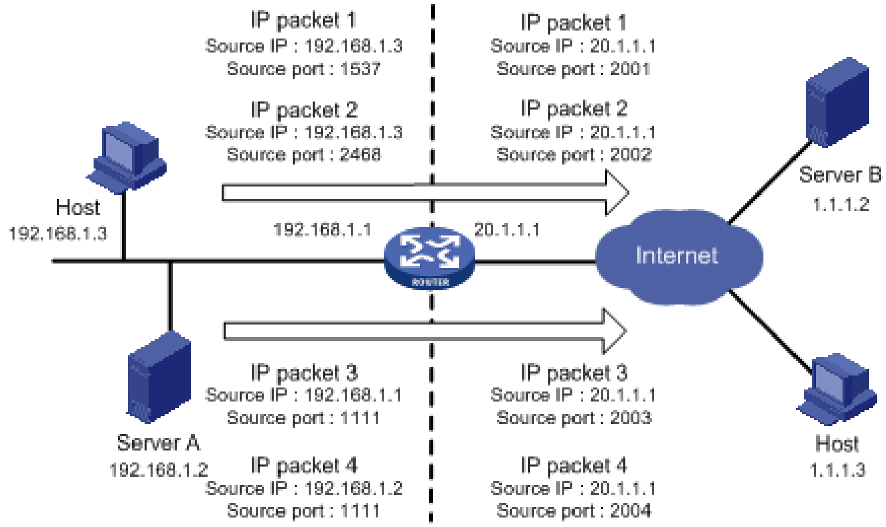
What is NAT?

Network address translation (**NAT**) is a methodology of remapping one IP address space into another by modifying network address information in Internet Protocol (IP) datagram packet headers while they are in transit across a traffic routing device. The technique was originally used for ease of rerouting traffic in IP networks without renumbering every host. It has become a popular and essential tool in conserving global address space allocations in face of IPv4 address exhaustion by sharing one Internet-routable IP address of a NAT gateway for an entire private network. (Source: https://en.wikipedia.org/wiki/Network_address_translation)



NAT routers assign internal and external port numbers to egress source host packets and maintain a cache of this data to re-route returned packets to the correct internal source IP address.

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The VIA header

Whenever ScopTEL is behind a third party NAT router an external IP address must be defined so that Asterisk can rewrite the SIP VIA header with the public IP address of the router. Other technologies such as STUN can discover the public IP address of the router both server and client side. However it is easiest to configure the public IP address or Fully Qualified Domain Name manually on the server. Since ScopTEL does this natively the usage of any third party router employing a SIP ALG is NOT recommended.

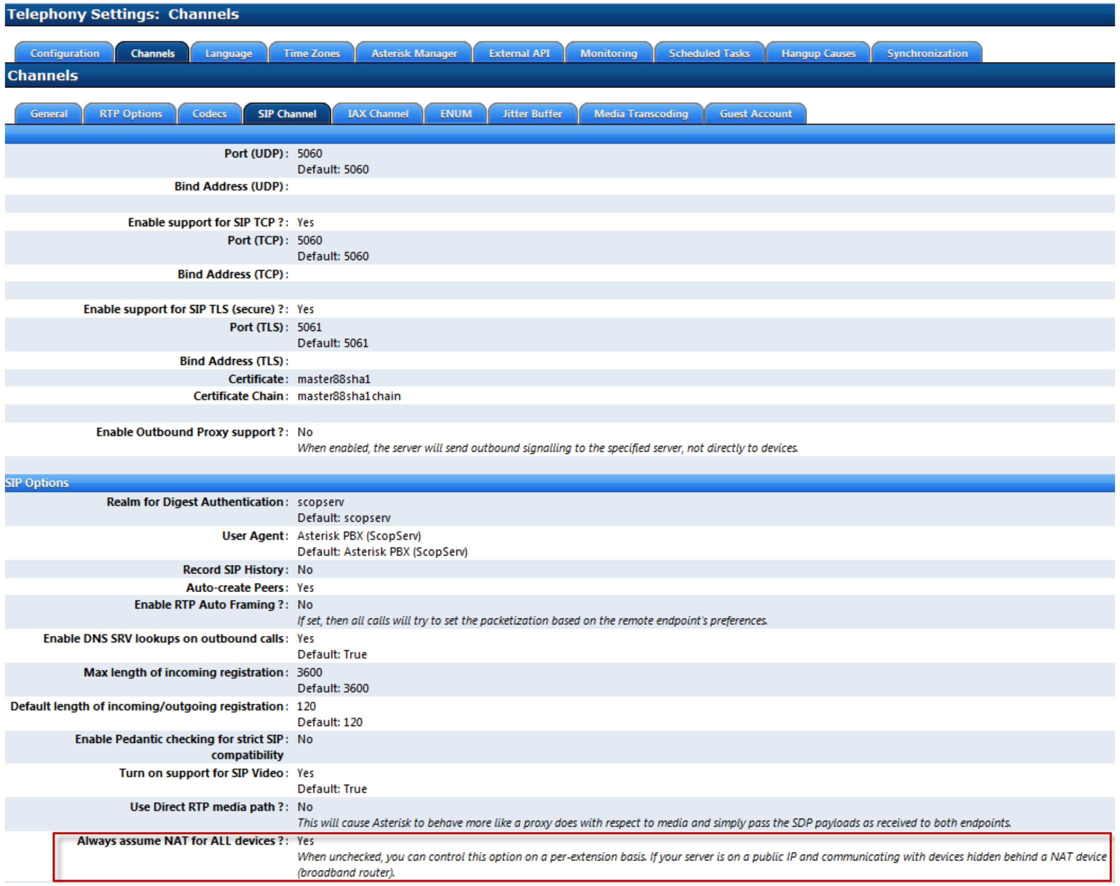
The VIA Header: Every proxy in the request path adds the “Via” the address and port on which it received the message, than forwards it onwards. When processing responses, each proxy in the return path processes the contents of the “Via” field in reverse order, removing its address from the top.

Here is what the SIP INVITE from a remote NAT extension looks like when calling an internal extension on the same server.

```
[2016-04-27 10:25:58] INVITE sip:501@fqdn:5060 SIP/2.0
[2016-04-27 10:25:58] Accept: application/conference-info+xml, application/sdp, message/sipfrag, multipart/mixed
[2016-04-27 10:25:58] Via: SIP/2.0/UDP 10.35.25.71:5062;branch=z9hG4bKd0ac118bea34ac054;rport
[2016-04-27 10:25:58] Max-Forwards: 70
[2016-04-27 10:25:58] From: "244" <sip:244@fqdn:5060>;tag=5efba267c4
[2016-04-27 10:25:58] To: <sip:501@fqdn:5060>
```

Setting all extensions to use NAT settings

This will configure all extensions to use 'nat = force_rport,comedia'



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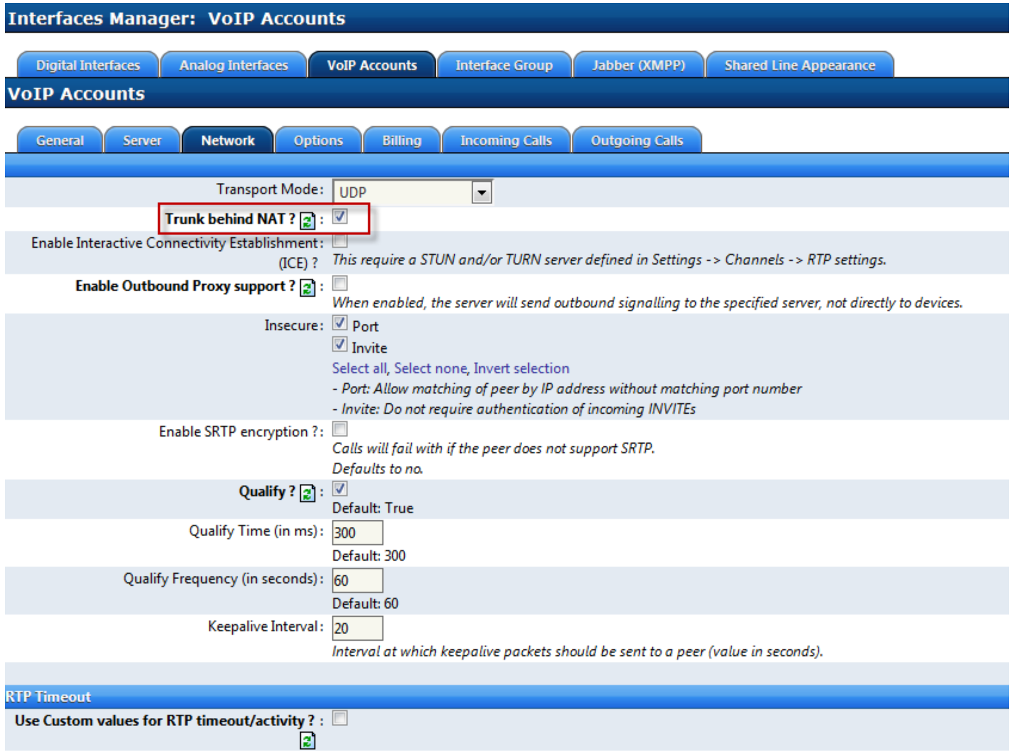
Setting the SIP Trunk to use NAT settings

This will configure the trunk to use ‘nat = force_rport,comedia’



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The externalhost setting is used to replace the VIA header

- Check the box to enable ‘Server behind NAT’ ONLY if the ScopTEL Server is behind a NAT router. This will set any SIP packets not in the Local Network list to use the externhost in the SIP VIA header. If the ScopTEL server has a direct public interface this option is not required.

- External IP or Hostname = fullyqualifieddomainnamegoeshere

- Any local hosts must have their Local Networks defined so that they DO NOT use the externalhost in the VIA header. This includes any local networks, VLAN’s, or remote VPN subnets, and often applies to ITSP SIP trunks using a private network such as a dedicated MPLS interface for the trunk! Failure to include all local networks will result in the public IP address being used for all local SIP signalling and these calls will fail.