Source-Connect Network Configuration

This document is designed to assist IT/Network administrators to configure your network to allow Source-Connect traffic in and out of your firewalled or NAT network.

Notes:

1. 'local' means the internal static IP of the Pro Tools machine, e.g. 192.168.1.5, where the machine is behind NAT. If the Pro Tools machine is on DHCP, you should provide the machine with a static NAT IP first.
2. The IP of source-elements.com is 147.202.41.185. If you are analysing network activity you may also note activity coming from 147.202.41.186. This can be ignored as it is conducting secondary network tests to enable operation of Source-Connect under less strict networks.

Configure:

1. Either allow all outbound UDP ports, or allow outbound UDP connections to certain IPs as needed.

2. Port forward/map the following **UDP** ports to the local IP:

6000 – 6001

If the user has Source-Connect Pro, the above ports may be modified to preferred ports, between 1024 and 65535. The ports must be an even number plus the port immediately following, e.g. 10060 and 10061 or 25980 and 25981.

3. Ensure the firewall has been specified to allow inbound access on the 2 selected UDP ports.

Once you have done this, you can log in. Then, to check that your UDP ports are not firewalled and are mapped to your local IP, the status panel has a port status message. If the test comes back 'successful' (Pro) or 'open' (Standard), it means that the source-elements.com server is able to send and receive the UDP traffic. If you get 'port not mapped' it means that there is either a firewall or there is incorrect or absent port mappings for the UDP ports. If you get 'failed' then there is a firewall active on those ports for your local IP.

Source-Connect is peer to peer, and for the connection test to return successful you

will need to allow outbound/inbound UDP from source-elements.com (147.202.41.185). Note that this rule is not necessarily required for successful operation of Source-Connect, it simply allows the user to be assured that the network is properly functioning. As long as the IP address of the connection partner you wish to use is enabled then Source-Connect will function as expected.

More technical information can be found here, if needed:
http://www.source-elements.com/public

Introduction to how Source-Connect works.

Source-Connect transfers a real-time, high-quality audio stream between remote locations via the UDP protocol. UDP is used in order to allow low delay communication, and thus relies on network access to UDP ports.

Generally, the machine running Source-Connect is on a private network address (behind NAT, or Network Address Translation). UDP is unable to independently negotiate NAT, so the network (secured by a router and/or firewall) must be configured with specific Port Mapping (or Port Forwarding) rules.

If for some reason Port Mapping is not possible, e.g. the user has no administration access to the network, Source-Connect will attempt to negotiate the network. Negotiation, if possible at all, is often slower and can create unwelcome delays and data loss because the UDP data must traverse an unknown and possibly temporarily available path. And, when this negotiation attempt simply attempt fails, the user cannot receive the audio stream. In addition, if the ports are not mapped Quality of Service rules cannot be applied. Therefore, we recommend to all users that in a permanent studio situation they administer the network appropriately to allow proper UDP port mapping.

Using other port numbers:

Source-Connect allows the user to specify a particular set of UDP ports. First, the user must configure their internal network settings to connect via a static IP, rather than DHCP, and then configure port mapping on the router. For example, the user configures the router to forward all incoming UDP data on ports 6000 and 6001 to their internal IP address, and enters the number 6000 in the Settings Panel of Source-Connect. (Ports may be any even number between 1024 – 65534 and this number plus one).

How Source-Connect determines its network status

1. Source-Connect determines the internal(private/local) and external (public) IP addresses. The external IP address is determined by sending an HTTP request to a remote application on our server, source-elements.com:80 (147.202.41.185:80).

2. Source-Connect determines the port mapping status by sending an HTTP request to our remote server to begin forwarding a series of test UDP packets to the specified ports (e.g. 6000 and 6001) on the determined IP address.

If Source-Connect receives these test UDP packets, it knows that port mapping is enabled, and will use these ports for the incoming audio stream.

If Source-Connect does not receive any of the UDP packets, it will time-out and inform the user that the test has either returned **'port not mapped'** or **'failed'**. In the case of 'port not mapped', Source-Connect may have detected an alternative method of connecting and it is still possible that the user will receive an incoming stream. Usually an outgoing stream is still possible in this case. If 'failed' it is highly unlikely that there will be sent or received audio.

Common issues:

Connection Test: 'port not mapped' or 'failed'
The user is able to properly configure their network for UDP port mapping however the connection test does not return successfully.

Possible causes:

- The user's ISP will filter HTTP traffic on port 80
- The user is behind a HTTP proxy
- All TCP and/or UDP ports are firewalled
- The ISP is using a caching server for UDP traffic

In these cases Source-Connect will not be able to determine the user's public IP address, and the test UDP packets will be 'lost' within the ISP's network. The test will not return successful, and the secondary, less reliable methods will be used where possible.

In instances where port mapping is simply not possible we suggest using a VPN server with Source-Connect Pro.

For further support:

Chicago: +1 312 706 5555
London: +44 20 7193 3700
support@source-elements.com

http://www.source-elements.com/support