ja.net Video Services

Configuring the Institution Firewall for AccessGrid traffic

In addition to the software firewall on an AccessGrid node PC, there will usually be a hardware firewall that provides security to the local area network. This document should be used by the network administrator of that local area network to allow AccessGrid traffic to be transferred.

Both versions of AccessGrid client (AG Toolkit and IOCOM IG Meeting) work in similar ways. They both rely on the client making one or more TCP connections to the server. Once connected UDP packets will be sent to, and received from the Virtual Venue. In general, the TCP connections use fixed ports, whereas the UDP data uses a range of ports.

In the tables below, an 'Outgoing' direction implies a locally initiated TCP connection. A 'Bidirectional' direction implies UDP packets being transmitted and received on the same port.

The server (i.e hostname listed in the "to/from" column) is the host that is used by the client to make TCP connections, and is used for the transfer of UDP packets when the client is on a non-multicast enabled network. There are several different hostnames listed because the AGSC operate backup servers for each service, so the firewall should be configured to allow connections to all these machines.

The tables below are split into the following groups:

- AG Toolkit Nodes that are on a Multicast enabled network.
- AG Toolkit Nodes that are not on a Multicast enabled network and have to make a Unicast connection to Toolkit Unicast-Multicast Bridge Servers.
- IG Meeting Nodes that are on a Multicast enabled network.
- IG Meeting Nodes that are not on a Multicast enabled network and have to make a Unicast connection to IOCOM Unicast-Multicast Bridge Servers.
- IGPix. This is a presentation sharing application used by room based AG Nodes running the AG Toolkit software.

AG Toolkit Multicast

Port	Protocol	Direction	To/From Toolkit Servers	Comment
8000	TCP	Outgoing	sam.ag.manchester.ac.uk / fraser.ag.manchester.ac.uk	Virtual Venue Server Port
8002	TCP	Outgoing	sam.ag.manchester.ac.uk / fraser.ag.manchester.ac.uk	Event Port
5223	TCP	Outgoing	jabber.mcs.anl.gov	Text Port
8006	TCP	Outgoing	sam.ag.manchester.ac.uk / fraser.ag.manchester.ac.uk	Data Port
50000-50020	TCP	Outgoing	sam.ag.manchester.ac.uk / fraser.ag.manchester.ac.uk	Data Transfer Port
venue video port*	UDP	Bidirectional	Multicast IP address - Video channel	
venue video port	UDP	Bidirectional	Multicast IP address - Video	

+1*			channel	
venue audio port*	UDP	Bidirectional	Multicast IP address - Audio channel	
venue audio port +1*	UDP	BiDirectional	Multicast IP address - Audio channel	

AG Toolkit Bridged

Port	Protocol	Direction	To/From Toolkit Servers	Comment
8000	TCP	Outgoing	sam.ag.manchester.ac.uk / fraser.ag.manchester.ac.uk	Virtual Venue Server Port
8002	TCP	Outgoing	sam.ag.manchester.ac.uk / fraser.ag.manchester.ac.uk	Event Port
5223	TCP	Outgoing	jabber.mcs.anl.gov	Text Port
8006	TCP	Outgoing	sam.ag.manchester.ac.uk / fraser.ag.manchester.ac.uk	Data Port
50000-50020	TCP	Outgoing	sam.ag.manchester.ac.uk / fraser.ag.manchester.ac.uk	Data Transfer Port
10000-10999	UDP	BiDirectional	sam.ag.manchester.ac.uk / fraser.ag.manchester.ac.uk	Bridge - Anything in range
1992	TCP	Outgoing	sam.ag.manchester.ac.uk / fraser.ag.manchester.ac.uk	Bridge Listening Port
8030	TCP	Outgoing	sam.ag.manchester.ac.uk / fraser.ag.manchester.ac.uk	Bridge Registry Peer

IOCOM IG Meeting / Multicast

Port	Protocol	Direction	To/From IOCOM Servers	Comment
80	TCP	Outgoing	virgo.agsc.man.ac.uk / roberts.agsc.man.ac.uk / knight.agsc.man.ac.uk	IOCOM Venue Server
venue video port*	UDP	BiDirectional	Multicast IP address - Video channel	
venue video port +1*	UDP	BiDirectional	Multicast IP address - Video channel	
venue audio port*	UDP	BiDirectional	Multicast IP address - Audio channel	
venue audio port +1*	UDP	BiDirectional	Multicast IP address - Audio channel	

IOCOM IG Meeting / Unicast

Port	Protocol	Direction	To/From IOCOM Servers	Comment
80	TCP	Outgoing	virgo.agsc.man.ac.uk / roberts.agsc.man.ac.uk / knight.agsc.man.ac.uk	IOCOM Venue Server
554	TCP	Outgoing	virgo.agsc.man.ac.uk / roberts.agsc.man.ac.uk / knight.agsc.man.ac.uk	IOCOM Bridge Venue Server
10000-19999	UDP	BiDirectional	virgo.agsc.man.ac.uk / roberts.agsc.man.ac.uk / knight.agsc.man.ac.uk	Bridge - Anything in range

An alternative to the manual port configuration as shown above is to use Real-Time Streaming Protocol. In order to facilitate NAT traversal as well as to enhance security, the IOCOM servers utilize RTSP to open ports dynamically. Most firewalls support this protocol

and it simply needs to be activated. In addition RTSP security can be further enhanced by configuring it so that it only opens sessions to the IOCOM Server that is going to be used.. IOCOM Servers ensure that these ports are closed upon completion of the AccessGrid meeting.

If RTSP is not available on the firewall, port triggering can be used. Port triggering should be configured to use port 554 as the signal port. Some firewalls will then open the requested ports dynamically while others will open a range. The range should be UDP ports 10000 thru 65535. Again this should be limited to the IOCOM Servers.

IGPix

Most institution firewalls allow machines on the LAN to make connections to webservers via TCP Port 80. AG Nodes use this port to connect to the IGPix server, so it must not be blocked. The three IGPix servers that may need to be connected to by AG Nodes are listed below:

Port	Protocol	Direction	To/From
80	TCP	Outgoing	virgo.agsc.man.ac.uk / roberts.agsc.man.ac.uk / knight.agsc.man.ac.uk

AccessGrid Virtual Venues are in essence Multicast Groups with static IP addresses. So to connect to a Virtual Venue, the client needs to know the IP address and Ports to use for the transmission of audio and video data. The following table lists the UK Shared Room Virtual Venue IP addresses and Ports. These are the Virtual Venues that are allocated to meetings by the JANET Access Grid Booking Service. The AGSC Room Virtual Venues are required for various node testing. So this table represents those Virtual Venues most likely to be used for an AccessGrid meeting. This isn't the entire list of available Virtual Venues; other Virtual Venues include Institution Venues, or International Venues. The lists of these other Virtual Venues, along with their IP addresses and Ports are maintained on the firewall configuration webpage on the AGSC website. The AGSC recommend opening up the institution firewall to allow connections to all existing Virtual Venues if possible, however only allowing connections to the Virtual Venues listed below will certainly do for regular UK AccessGrid usage.

UK Shared Room Virtual Venues	Audio Multicast Address	Audio Port	Video Multicast Address	Video Port
Bar	233.3.18.32	57004	233.3.18.32	57006
Beech	233.3.18.37	57004	233.3.18.37	57006
Ben Brierley	233.3.18.57	57004	233.3.18.57	57006
Cross Keys	233.3.18.49	57004	233.3.18.49	57006
Dean Brook	233.3.18.56	57004	233.3.18.56	57006
Flemish Weaver	233.3.18.47	57004	233.3.18.47	57006
Footage and Firkin	233.3.18.39	57004	233.3.18.39	57006
Gardeners Arms	233.3.18.55	57004	233.3.18.55	57006
Half Way House	233.3.18.59	57004	233.3.18.59	57006
Hilary Step	233.3.18.36	57004	233.3.18.36	57006
Lass O Gowrie	233.3.18.34	57004	233.3.18.34	57006

Marble Beer House	233.3.18.33	57004	233.3.18.33	57006
Metropolitan	233.3.18.41	57004	233.3.18.41	57006
Midland	233.3.18.53	57004	233.3.18.53	57006
O Sheas	233.3.18.40	57004	233.3.18.40	57006
Old Wellington Inn	233.3.18.45	57004	233.3.18.45	57006
Red Barn	233.3.18.54	57004	233.3.18.54	57006
Royal Oak	233.3.18.52	57004	233.3.18.52	57006
Samuel Platts	233.3.18.46	57004	233.3.18.46	57006
Shakespeare	233.3.18.43	57004	233.3.18.43	57006
Sinclairs Oyster Bar	233.3.18.42	57004	233.3.18.42	57006
The Woolpack	233.3.18.48	57004	233.3.18.48	57006
Thomas Chop House	233.3.18.51	57004	233.3.18.51	57006
VRVS – Courtyard	233.3.18.50	57004	233.3.18.50	57006
VRVS – Rooftops	233.3.18.44	57004	233.3.18.44	57006
VRVS - Sand Bar	233.3.18.35	57004	233.3.18.35	57006
VRVS – Urbis	233.3.18.38	57004	233.3.18.38	57006
Whey Pat Tavern	233.3.18.60	57004	233.3.18.60	57006
Whitegate	233.3.18.58	57004	233.3.18.58	57006
AGSC Room Virtual Venues	**Audio Multicast Address**	**Audio Port**	**Video Multicast Address**	**Video Port**
AGSC Room 1	233.33.100.11	57004	233.33.100.11	57006
AGSC Room 2	233.33.100.12	57014	233.33.100.12	57016
AGSC Room 3	233.33.100.13	57024	233.33.100.13	57026
AGSC Room 4	233.33.100.14	57034	233.33.100.14	57036
AGSC Room 5	233.33.100.15	57044	233.33.100.15	57046
AGSC Test Room	233.33.100.16	57004	233.33.100.16	57006
AGSC H.323 Room	233.33.100.17	57004	233.33.100.17	57006

**Multicast IP Addresses and UDP Ports required for the most commonly used UK Virtual Venues.*

End of document.