Networking details of Audia and Nexia platforms

Biamp is often asked about the details of our networking ports on our network enabled products. These network-enabled products include AudiaSOLO, AudiaFLEX with and without a CobraNet (digital audio over Ethernet) option, and 5 Nexia models. The implementation of standard networking protocols allows for ever-expanding options as the IT industry grows.

System architecture

Biamp defines a "System" as the collection of Audia or Nexia devices that are required to implement the processing specified within a single .dap (created with Audia design software) or .nex (created with Nexia design software) file. It is this concept of a system that allows the devices to share DSP resources, remote controls, and logic signals. Within a system, each device has a static IP address, and a network path to each IP address is required for the operation of Audia, Nexia and daVinci (control software for both Audia and Nexia). This is important when deciding if and how remote access is granted to the system.

Remote networking considerations

It is possible to place a system on a LAN and control it over a WAN using Biamp’s software packages (Audia, Nexia and DaVinci).

The most straightforward method is to obtain public static IP addresses for each device and then use the TCP connect feature of the software. This is highly undesirable in many cases because of the cost of obtaining public IP addresses. Also, Biamp software only supports node addresses that are within the same Class C subnet when using TCP connect.

A second option is to implement a VPN server on the same LAN as the devices and use a VPN client to connect from a WAN. This allows the PC running the software to be virtually connected to the LAN. TCP connect is still required in this situation, because the VPN would not generally forward the broadcast packets generated by the broadcast discovery method.

Accessing Biamp devices via Network Address Translation (NAT) or Port Forwarding is not supported.

Port details

For reference, some technical details of the various networking ports available on the Audia and Nexia platforms are detailed below.
Ethernet control port

- 100Mbps half-duplex for Nexia Models, 10Mbps half-duplex for Audia models.
- TCP/IP protocol support for control and setup using Audia, Nexia and DaVinci software packages.
- PC-to-device and device-to-device communications on TCP port 12001.
- Device-to-device communications on TCP port 12001.
- Device-to-device communications on UDP port 12002.
- PC-to-device broadcast on UDP port 12000 for discovery only.
- TELNET server available for control system interface (TCP port 23)
- Static IP address required for setup and control of each device. DHCP not supported.
- Device to RED-1 or NPS-1 discovery on UDP port 12003

CobraNet port

- 100Mbps full-duplex Ethernet port.
- Audio transmitted via registered link-layer protocol (protocol number0x8819).
- High link bandwidth utilization possible depending on total number of channels being sent/received.
- Operates independently from the control Ethernet port.
- SNMP monitoring of CobraNet node status is available but not required.
- IP address required only if SNMP monitoring is desired, or if NPS-1 in use. Set to DHCP by default.

NexLink (all Nexia models only)

- Proprietary digital audio link
- LVDS electrical interface
- Although connected with CAT 5 cabling, this is not an Ethernet network

Remote Control Bus (all Audia and Nexia models)

- Controller Area Network (CAN) low-level protocol.
- Proprietary Biamp Systems application protocol.