AXIA PATHFINDER

ROUTING AUTOMATION TOOLS

CONTROL FREAKS: REJOICE

Axia's PathfinderPC, PathfinderPRO and Pathfinder Core PRO router control family is an amazingly rich set of tools you can use to customize and command your entire Axia network, allowing you to craft extremely sophisticated routing functions. Define automated switching events, construct custom software control panels, change between presets manually, on a daypart schedule, or via an external trigger. Pathfinder's advanced features include the ability to sense silence at a particular audio port and patch around it automatically — and even send the engineer an e-mail notification. And that's just the start.

A LITTLE ABOUT AXIA.

Axia is the AoIP division of Telos Systems, a technology leader in professional audio equipment for radio broadcasters since 1984. In 2003, we introduced the world's first Ethernet-based console system for broadcasting. At the time this was a new idea, but VoIP showed the telecom industry how powerful, flexible and cost-efficient it was to move audio via IP, and the idea caught on fast with broadcasters, too. AoIP (sometimes called IP-Audio) is mainstream technology now, with more than 2,000 radio studios around the world equipped with Axia networks.

Axia helps you build studio facilities to meet today's most demanding broadcasting applications. With Axia, you can quickly and easily connect a few rooms, or an entire facility. Axia networks have a total system capacity of more than 10,000 audio streams, and can carry hundreds of digital stereo channels (plus machine logic and PAD) over a single CAT-6 cable, eliminating much of the cost normally associated with wiring labor and infrastructure.

For example: a couple of Axia interface nodes, connected together, can move a group of audio signals over an Ethernet cable from one room to another. Connect with fiber and you can go across campus. Attach a few more nodes and a switch and you have a distributed multi-room routing switcher. Plug in a mixing surface and console engine to add a powerful networked broadcast console. Add intercom stations for broadcast-quality plant communications that can be taken to air. Plug in your delivery system PC and you can transfer files, live audio, and associated data all over the same network. And since Axia audio is networked, Analog and digital signals are merged seamlessly; cross-point switching from any source to any destination is fast and easy.

But there's much more to Axia than just the network. Once all of your consoles, peripheral devices and computer workstations are connected together for unlimited sharing, it's easy to add phone systems, audio processors, codecs, satellite receivers, program delay units, or any audio device from the ever-growing list of Axia Partners. All of these devices work together in tight integration, which leads to more intuitive and intelligent operation. By taking advantage of the efficiencies of computer networking, Axia simplifies, saves you money, gives you choices, and prepares you for the computer and data-centric studios of today — and tomorrow.

POWER IS GOOD...
BUT ONLY IF YOU CAN CONTROL IT.

In today's broadcast environment, information is key. So Pathfinder allows you to keep logs of your studio network's routing operations — route changes, GPIO changes, user button presses, and much, much more.

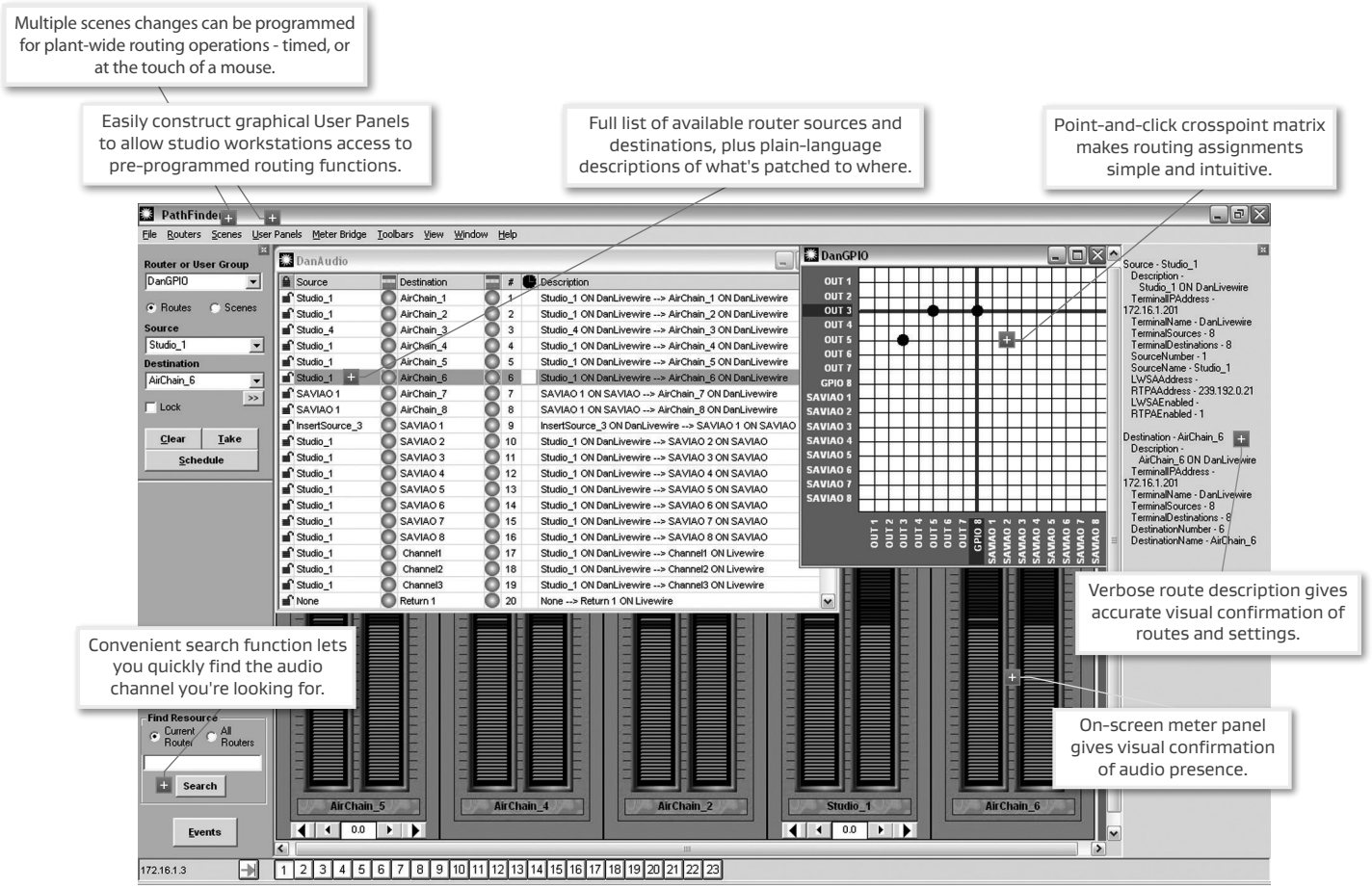
So you want to design that perfect automated system? Pathfinder gives you the tools. Pathfinder Stack Events allow you to design logic as simple – or sophisticated – as you need. An enhanced, graphical editor eliminates tedious script writing, allowing you to create sophisticated routing "scenes" with Boolean logic that automatically watch for and react to specified events.

Pathfinder's Panel Designer applet lets you construct custom on-screen controls that can be deployed on PCs across your network. Or, map your custom designed features to rack-mounted button panels and user keys mounted right in the console. You can even use Pathfinder to dynamically change button color and text, to display status and engage actions. There are several different Pathfinder offerings — read on to find out which is right for you.

PATHFINDER PC SOFTWARE

Designed for automated routing in small to medium-sized facilities, PathfinderPC gives you networked control of up to 25 Axia devices. This full-featured system runs on Windows PCs and allows you to construct and execute route or scene changes based on scheduled events, GPIO closures or Silence Detect trigger events. Using the client application, you can log in and change routing from anywhere you have network or Internet access. Use PathfinderPC to attach events to Axia SmartSwitch, SoftSwitch and Film-Cap button panels, or construct on-screen "virtual" controls that can run simultaneously on up to 10 PCs.

Pathfinder's Panel Designer applet lets you construct custom on-screen controls that can be deployed on PCs across your network. Or, map your custom designed features to rack-mounted button panels and user keys mounted right in the console. You can even use Pathfinder to dynamically change button color and text, to display status and engage actions. There are several different Pathfinder offerings — read on to find out which is right for you.

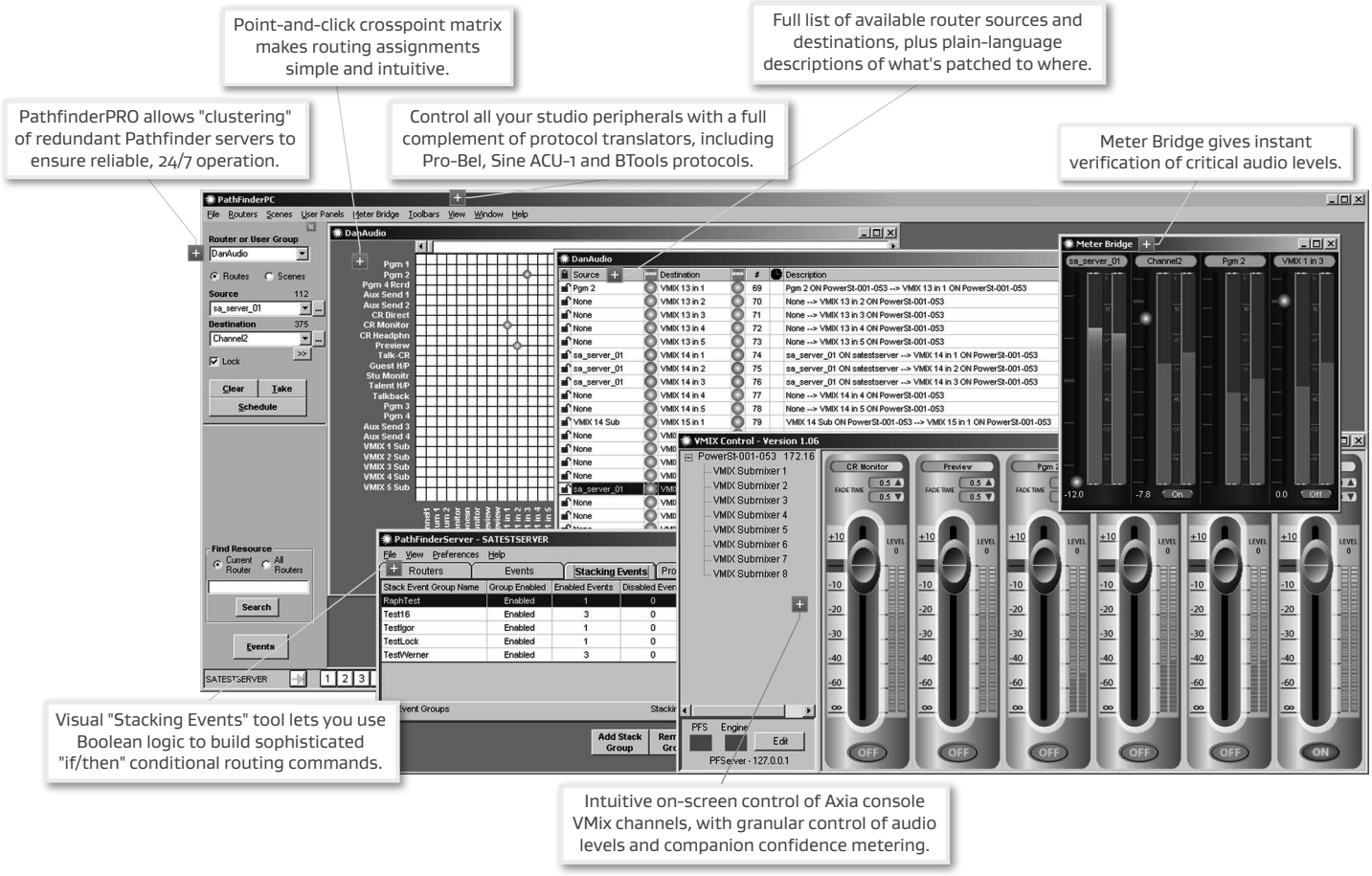


PATHFINDER PRO SOFTWARE

PathfinderPRO, the enterprise version of Pathfinder, contains all of the features found in PathfinderPC plus additional capabilities tailored to facilities with large physical plants or complex operational requirements. PathfinderPRO supports server "clustering" – running simultaneously on two connected, yet independent computers – for the ultimate in redundancy and security.

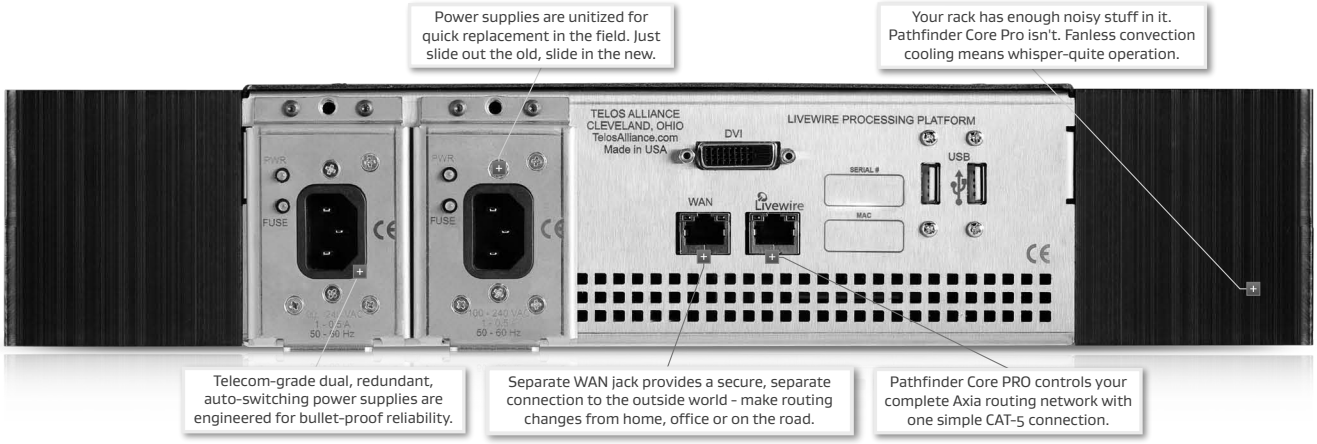
PathfinderPRO controls an unlimited number of Axia devices and supports as many end-user connections as your CPU can handle. PathfinderPRO can directly control console VMix virtual mixers, Element 2.0 motorized faders, Show Profile changes, and more.

PathfinderPRO doesn't stop at just controlling your Axia equipment. Complete delivery system integration is at your fingertips with Sine Systems ACU-1, Pro- Bel and BTools protocol emulators, plus support for routing and translating of serial, TCP and UDP ports. There are also snap-in real-time metering and Web browser controls that provide added options for user-designed software panels. Browser controls even support multimedia audio and video, allowing embedded A/V streaming displays in software mini-panels.



PATHFINDER CORE PRO

Pathfinder Core Pro delivers the power of PathfinderPRO software in a dedicated hardware appliance — no Windows server required. Programmed using an intuitive graphical software interface, Pathfinder Core Pro is fast, efficient, and simple to use: just attach to your network, give it an IP address, and it automatically detects your Axia audio sources/destinations and GPIO ports. While providing functions similar to PathfinderPRO software, Pathfinder Core Pro builds on years of experience to include powerful new capabilities as well. And Pathfinder Core Pro give you peace of mind by providing distributed redundancy within your network. Multiple units can be "clustered" for automatic redundant backup, and each fan-free unit has field-replaceable dual-redundant power supplies as well. As a dedicated hardware appliance, Pathfinder Core Pro gives you freedom — freedom from concerns about software compatibility, automatic OS patches, and computer hardware limitations.



HOW DO THEY COMPARE?

	PathfinderPC	PathfinderPRO	Pathfinder CorePRO
Feature			
Server Licences	1	2	N/A
Server OS Required	XP/2003 Server	2003 Server	N/A
Client Connections (Client/Mini)	10	No limit	No limit
Axia Devices it will Control	25	No limit	No limit
Clustering		Yes	Yes
Routers Supported			
Axia Audio	Yes	Yes	Yes
Axia GPIO	Yes	Yes	Yes
Virtual	Yes	Yes	Yes
SA Port Router		Yes	
Protocol Translators			
Software Authority Protocol	Yes	Yes	
Generic Protocol	Yes	Yes	Yes
Pro-Bel General Router		Yes	Yes
Pro-Bel General Switcher		Yes	Yes
Sine ACU-1		Yes	
Btools		Yes	Yes
Routing Events Available			
Time Based Route Change	Yes	Yes	Yes
GPIO Based Route Change	Yes	Yes	Yes
Silence Detect Backup Route	Yes	Yes	Yes
Detect/Activate Routes	Yes	Yes	Yes
Audio Level/Silence Detect	Yes	Yes	Yes
Detect/Activate GPIO	Yes	Yes	Yes
Software Panel Button Control	Yes	Yes	Yes
LCD Panel Button Control	Yes	Yes	Yes
Element Fader On/Off	Yes	Yes	Yes
Element Motorized Fader Control		Yes	Yes
User Command Send/Receive (Generic Translator)	Yes	Yes	Yes
Element Profile Change	Yes	Yes	Yes
VMIX Control		Yes	Yes
Send Email	Yes	Yes	Yes
Shell Command		Yes	
Node Gain Control	Yes	Yes	Yes
Panels (Mini, Client, Panel Designer)			
Buttons	Yes	Yes	Yes
Labels	Yes	Yes	Yes
Web Browser (Supports video)		Yes	Yes
Meters		Yes	Yes
Faders for VMIX/Motorized/Node Gain		Yes	Yes

FAQs

IS PATHFINDER REQUIRED TO RUN MY AXIA NETWORK?
No, Axia networks are self-contained routing switchers that don't require any external control. However, if you want to automate your routing switcher, with preset scene changes, conditional routing changes or scheduled route changes, Pathfinder will satisfy your needs.

WHY WOULD I NEED ROUTING AUTOMATION?
Pathfinder lets you consolidate control of your network operations, bringing all of your equipment together under one simple interface. It takes all of your Axia nodes and equipment and presents it as if it were a traditional single router, so you don't need to jump from place to place to see and manipulate your facility's routing infrastructure.

WHAT KIND OF HARDWARE AND SOFTWARE IS NEEDED TO RUN PATHFINDER SOFTWARE?
You'll need a 2.4 Ghz (or faster) PC with 1 Gigabyte of RAM and Windows Server 2003, minimum. Windows 2008 Server is supported and recommended. At least 40 Gb of free hard drive space is recommended. For single-server installations, we recommend equipping your PC with dual NICs to isolate your Axia network from the outside world, while allowing access to Pathfinder from outside your office. For two-server "clustering" of PathfinderPRO machines, we recommend four NICs in each server – one for your Axia network, one for your WAN, and two for crossover connections between the two servers.

I SEE THAT THERE ARE PATHFINDER SERVERS AND CLIENTS. WHAT'S THE DIFFERENCE?
Pathfinder Server is the main application where you define your routing environment. Pathfinder Client is an interface that can run on PCs connected to the Axia network, allowing users to take control of your routing automation. Pathfinder lets you create custom user panels using a tool called Panel Designer, which can include buttons, labels, and any custom graphics you want to skin them with. The controls on these panels can then interact with the server to make routes, scene changes, display statuses, and a myriad of other tasks, and can be as simple or as complex as you like. These panels are available in Pathfinder Client, and provide users with a simple user interface for day-to-day tasks.

WHAT IF I WANT TO GIVE TALENT ACCESS TO JUST A FEW ROUTING COMMANDS? IS THERE AN APP FOR THAT?
Yes; PathfinderPC Mini, a "user" application that's included with Pathfinder. With PathfinderPC Mini , you can give talent access to just one predefined user panel. When you start PathfinderPC Mini it gets the panel from the Server, and displays it as a standalone application. This way, your users have only the commands you want to give them access to.

CAN I TRIGGER ROUTING CHANGES FROM STUDIO CONSOLES?
Yes – there are a variety of drop-in modules for our popular Element consoles that you can use to change single routes, or execute pre-defined salvos. Rack-mount panels make it convenient to map Pathfinder routing commands to hardware buttons located elsewhere, too – like your TOC, engineering office or communications room.

CAN PATHFINDER SENSE DEAD AIR?
Yes, there's a Silence Detect function. With it, you can pick any audio stream in your network – say, your Program-1 output – and monitor it for signal loss. "Silence" can be defined as any audio level you like. Once your "silence" condition is met, Pathfinder can take action by switching to a different audio input, flashing an alert to talent, sending you an e-mail, etc.

CAN PATHFINDER REACT TO A SYSTEM COMMAND? I'M THINKING ABOUT EAS ACTIVATION. . .
Sure. You can define Stack Events, in which Pathfinder monitors GPI channels for external commands and takes action when predefined conditions are met. So you could use a Stack Event to watch the GPI output of your EAS decoder, and switch your main program output, along with your HD channels, to be fed by the output of your EAS gear until the GPI is released – upon which audio inputs are returned to their normal sources.

Pathfinder can work with commands from your automation or playout systems, too.

WILL PATHFINDER CLIENT SOFTWARE RUN ON THE LATEST WINDOWS OS?
Yes – Windows Vista and Windows 7 can both run Pathfinder software. Pathfinder will run on 64-bit operating systems too.

I DON'T NEED PATHFINDERPRO NOW, BUT I MIGHT IN THE FUTURE. IS THERE AN UPGRADE PATH?
Yes, you can purchase an upgrade from PathfinderPC to PathfinderPRO from your Axia distributor.

I DON'T WANT TO TRUST MY ROUTING TO A PC.
No problem – Pathfinder Core Pro is a standalone routing automation appliance that attaches to your Axia network and requires no PC. It's designed for bullet-proof, 24/7 routing operation.

DOES PATHFINDER CORE PRO SUPPORT CLUSTERING, LIKE PATHFINDERPRO SOFTWARE?
Yes. You can attach two Pathfinder Core Pro devices to your network for complete routing automation redundancy.

SPECIFICATIONS

PATHFINDER CORE PRO

POWER SUPPLY AC INPUT

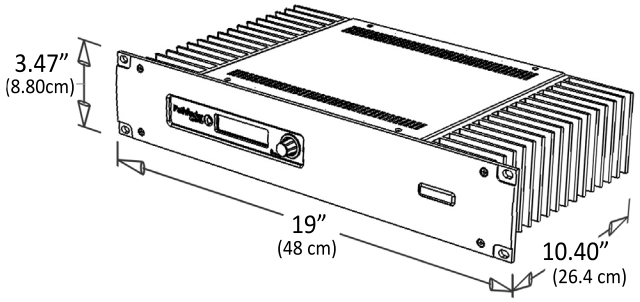
- 90VAC to 240VAC, 50 Hz to 60 Hz, IEC
- receptacle, internal fuse
- Power consumption: 100 Watts, auto-ranging

OPERATING TEMPERATURES

- -10 degrees C to +40 degrees C, <90% humidity, no condensation

DIMENSIONS

- W19.00in (48.0 cm), H 3.47 in (8.80 cm), D 10.40 in (26.4 cm)



PATHFINDERPC SOFTWARE

SYSTEM REQUIREMENTS

- Pathfinder PC Client Applications

HARDWARE

- Minimum hardware requirements specified for Windows XP, 2003 Server, 2008 Server, and Windows 7 are also acceptable to run PathfinderPC Client, PathfinderPC Mini, Panel Designer, SAPortRouter, VMIXControl, and the bridge application programs.

SOFTWARE

- Windows XP, 2003 Server, 2008 Server, or Windows 7. Microsoft.NET 3.5 SP1 is also required. Additionally, Windows 7 and 2008 require that the startup links be set to “Run as Administrator” in the compatibility frame.

PATHFINDER PRO SERVER

HARDWARE

- Minimum 512 Mb RAM, If the clustering option is used, minimum two NIC cards should be used, four are recommended.

SOFTWARE

- Windows XP, 2003 Server, 2008 Server, and Windows 7. However, installations using more than 10 clients(PathfinderPC Client, PathfinderPC Mini)will require a server operating system such as Windows 2003 server or Windows 2008 Server.

PATHFINDER PC SERVER

- Windows XP or any workstation operating system

ARCHITECT'S SPECIFICATIONS

PATHFINDER PC

SPECIFICATION OVERVIEW

The following describes software for controlling, via IP connection, broadcast hardware and software comprising an IP-Audio Network. The software shall be able to execute, on a timed or manual basis, changes in the operating state of individual elements. The software shall likewise be able to execute, on a timed or manual basis, changes to the specified origination and destination points of audio + data streams.

SOFTWARE REQUIREMENTS

The software shall run on standard personal computers, and shall be compatible with the Windows XP, Windows 2003 Server, Windows 2008 Server, or Windows 7 operating systems.

The software shall allow routing of Axia audio, GPIO and “virtual” routers within the attached IP-Audio network. The software shall control no less than 25 connected devices.

The software shall include protocol translators to support the control of devices using either the Software Authority protocol or Generic routing protocol.

The software shall support Boolean logic events using a graphical “stacking event” editor, which shall support the following types of events:

- Time Based Route Change
- GPIO Based Route Change
- Silence Detect Backup Route
- Detect/Activate Routes
- Audio Level/Silence Detect
- Detect/Activate GPIO
- Software Panel Button Control
- LCD Panel Button Control
- Element Fader On/Off

ARCHITECT'S SPECIFICATIONS

- User Command Send/Receive
- User Command Send/Receive
- Send Email
- Node Gain Control

The software shall allow the construction of custom graphical user control panels to allow for distribution of limited routing control sets, deployable on independent computers attached to the IP-Audio network. These panels shall include the use of on-screen buttons and labels with values and actions defined by the designer.

The software shall support up to 10 client PC connections, which shall allow the use of custom control panels.

SUPPORT AND WARRANTY

The software shall be offered with a standard limited warranty period of 90 days. English-language factory support shall be available to users at no charge on a 24/7 basis.

PATHFINDER PRO

SPECIFICATION OVERVIEW

The following describes software for controlling, via IP connection, broadcast hardware and software comprising an IP-Audio Network. The software shall be able to execute, on a timed or manual basis, changes in the operating state of individual elements. The software shall likewise be able to execute, on a timed or manual basis, changes to the specified origination and destination points of audio + data streams.

SOFTWARE REQUIREMENTS

The software shall run on standard personal computers. The software shall support the "clustering" of two simultaneous, synchronized instances on two separate computers attached to the same network, which shall facilitate distributed backup and failsafe operation.

The software shall run on standard personal computers, and shall be compatible with the Windows XP, Windows 2003 Server, Windows 2008 Server, or Windows 7 operating systems.

The software shall allow routing of Axia audio, GPIO, "virtual" routers and SA Port routers within the attached IP-Audio network. The number of devices controlled by the software shall not be limited by the software itself.

The software shall include protocol translators to support the control of devices using the Software Authority protocol, Pro-Bel General Router protocol, Pro-Bel General Switcher protocol, Sine ACU-1 protocol, Btools protocol, and Generic routing protocol.

OPERATIONAL REQUIREMENTS

The software shall support Boolean logic events using a graphical "stacking event" editor, which shall support the following types of events:

- Time Based Route Change
- GPIO Based Route Change
- Silence Detect Backup Route
- Detect/Activate Routes
- Audio Level/Silence Detect
- Detect/Activate GPIO

ARCHITECT'S SPECIFICATIONS

PATHFINDER CORE PRO

SPECIFICATION OVERVIEW

The following describes an appliance for controlling, via IP connection, broadcast hardware and software comprising an IP-Audio Network. The appliance shall be able to execute, on a timed or manual basis, changes in the operating state of individual elements. The appliance shall likewise be able to execute, on a timed or manual basis, changes to the specified origination and destination points of audio + data streams.

The appliance shall be of a professional design, suitable for use by broadcasters requiring reliable, 24/7 unattended operation. The appliance shall feature professional, standards-based Audio over IP (AoIP) connectivity, convenient front-panel status monitoring, and browser-based remote monitoring and configuration.

PHYSICAL

The appliance shall consist of a 2RU, 19" standard rack-mount enclosure. The front panel shall be an attractive, yet functional design with a bright, clear OLED-based display and combination navigation/selection rotary encoder. The appliance shall be quiet in operation, fanless, and connect to AC power via an IEC power entry module. AC power input shall be of universal design, accommodating worldwide standard AC power voltages and frequencies. Dual-redundant power supplies with automatic failover shall be provided.
The rear panel shall provide two AC power (mains) connections. Power supplies shall be of a modular, quick-change design to facilitate speedy field service. The rear panel shall provide two Ethernet/IP (network) connections on standard RJ-45 bulkhead connectors.

NETWORK SUPPORT

The appliance shall support two self-contained Ethernet/IP network interfaces. Each network connection operates independently, each having its own MAC address, and may be individually assigned an IP address and other standard networking parameters. Either connection may be used for remote control and configuration input, as well as system routing command output.

OPERATIONAL REQUIREMENTS

The appliance shall support Boolean logic events using a graphical "stacking event" editor, which shall support the following types of events:

- Time Based Route Change
- GPIO Based Route Change
- Silence Detect Backup Route
- Detect/Activate Routes
- Audio Level/Silence Detect
- Detect/Activate GPIO
- Software Panel Button Control
- LCD Panel Button Control
- Element Console Fader On/Off
- Element Console Motorized Fader Control
- User Command Send/Receive
- Element Console Profile Change
- Element Console VMIX Control
- Send Email
- Axia Audio Node Gain Control

ARCHITECT'S SPECIFICATIONS

The appliance shall allow the construction of custom graphical user control panels to allow for distribution of limited routing control sets, deployable on independent computers attached to the IP-Audio network. These panels shall include the use of on-screen buttons and labels with values and actions defined by the designer, Web browser with inline streaming video support, real-time volume metering of networked audio streams, and virtual faders for control of Axia Element console VMIX settings, Element console motorized faders and Axia Audio Node output gain.

The appliance shall support control of the following types of routers:

- Axia Audio
- Axia GPIO
- Virtual

The appliance shall be equipped with the following protocol translators to provide third-party routing control:

- Generic Protocol
- Pro-Bel General Router
- Pro-Bel General Switcher
- Btools

The number of software clients allowed to connect to the Server shall not be limited by the software itself.

SYSTEM UPDATES

The appliance will allow two versions (banks) of operating software to be stored internally. The appliance shall support the updating of its operating software via standard web browser access and file upload. The appliance shall further support web or file-based software updates with selection of booting to either software bank.

SUPPORT AND WARRANTY

The appliance shall be offered with a standard limited warranty period of two years. English-language factory support shall be available to users at no charge on a 24/7 basis.