

# Axia® Pathfinder Core™ PRO

## Routing Automation & Facility Management Appliance & VM



## OVERVIEW



### See More. Do More. Control More.

Thousands of broadcasters depend on PathfinderPC or PathfinderPRO Windows software to manage, monitor, and control real-time broadcast routing and signalling. A couple years ago, Pathfinder Core PRO put this network control power into a convenient, rack-mount appliance.

Introducing the 3rd generation of Axia Pathfinder, the Pathfinder Core PRO Appliance and Pathfinder Core PRO VM. Never before has routing control been this simple...or this sophisticated.



## Pathfinder Core PRO | [Experience the Power of Simplicity.](#)

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Pathfinder Core PRO—either Appliance or VM—is a toolbox with powerful features that combine to create efficient workflows and facility management. For one, it centralizes your Axia device monitoring and control, letting you make route changes from one central place—the Pathfinder Core PRO web interface. Pathfinder Core PRO simplifies routing in complex facilities, even those with thousands of audio sources and destinations, by giving the user easier, more intuitive control over audio workflows. This 3rd generation of Pathfinder routing control lets you customize and command your entire Axia network like never before with streamlined functionality including Logic Flows—a flow-chart-style events system that makes events easier to create, adjust, and monitor in real time. An efficient, intuitive web interface means easy configuration and monitoring from any device. And, this Linux-based appliance or VM makes full use of the processor while freeing you from a Windows-based server.

### **Pathfinder Core PRO Appliance**

Now, Pathfinder Core PRO is moving to a new hardware platform—a powerful and reliable 1RU appliance. Proven in years of on-air service, the new Pathfinder Core PRO appliance brings enterprise server-class redundancy and multi-processor, multi-threading architecture to real-time broadcast operations. Faster response, deeper event logging, and ultra-reliable monitoring and control are now available in the new Pathfinder Core PRO Appliance.

Access to the Pathfinder Core PRO Appliance is browser-based, so it's PC platform independent. And, despite significant increases in processing performance, there's no price increase for the new Pathfinder Core PRO Appliance.

Broadcasters worldwide are migrating key infrastructure and processes to virtualized platforms. Whether in company data centers or 3rd-party server farms, broadcasters in radio, television, and other digital media are finding significant benefits in equipment and process virtualization.

### **Pathfinder Core PRO VM**

Axia introduces Pathfinder Core PRO VM—the virtualized monitoring and control solution for Axia Livewire+™ AES67 facilities. Many IT departments have standardized on one or two server hardware platforms, and perhaps a single hypervisor solution. This standardization is good business practice with benefits for operations, maintenance, upgrades, and redundancy.

Now, Pathfinder Core PRO VM allows broadcasters to deploy Pathfinder monitoring and control on familiar, approved hardware. Moreover, thanks to Pathfinder's network-optimized monitoring and control protocols, Pathfinder Core PRO VM can be deployed locally or at an off-site data center. Indeed, just one instance of this VM-installable solution can monitor and control dozens of Axia broadcast facilities—over a small region or around the globe.

Today's broadcast IT and operations teams appreciate standardization, functionality, and redundancy. Pathfinder Core PRO VM may be installed in a selection of hypervisor environments including VMware, Hyper-V, VirtualBox, and Proxmox. Installation is also possible on standalone PC or Server hardware. Thanks to installation and deployment options, the VM version of Pathfinder Core PRO lends itself to centralized deployment, allowing monitoring and control of routing and Axia equipment for a network of studios and remote Axia locations.

## A Word About Axia

Axia is the AoIP division of the Telos Alliance, technology leader in professional broadcast audio equipment for radio broadcasters since 1984. In 2003, we introduced the world's first Ethernet-based console system for broadcasting with Livewire, an AoIP protocol that enables high-reliability, low-delay uncompressed digital audio over Ethernet, including audio, logic, control, and program associated data (PAD). At the time this was a new concept, 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.

Since those early days, Axia and the Telos Alliance have been committed proponents of AoIP interoperability—first as charter, supporting members of the X192 Working Group that defined AES67, and now as founding members of the Media Networking Alliance, a group of prominent equipment manufacturers formed to actively promote the adoption and implementation of the AES67 standard.

Today, 8000+ Axia mixing consoles and 100,000+ Livewire connected devices—along with those of 115+ Livewire partners—are powering broadcast studios around the globe. (For a complete list of Livewire partners, click [here](#).) And the list keeps growing.

Axia helps broadcasters build studio facilities to meet today's most demanding 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 Telos Alliance xNodes, 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 simple. Then use Pathfinder Core PRO to bring all of our routing together in one easy-to-use interface. Logic Flows within Pathfinder Core PRO react to button presses, silence alarms, time of day commands and other system-wide events to generate alerts and automate the workflow of the entire system.

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 a cinch 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 network efficiencies, Axia simplifies, saves you money, gives you choices, and prepares your studio for the demands of today — and tomorrow.

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## FEATURES (APPLIANCE OR VM)

- Reliable, redundant, system-wide routing control
- Use any modern browser on any platform to configure, monitor, and control
- Linux-based with a web user interface
- Provides route control and customized logic events
- Graphical interface with real-time state reporting
- Graphical logic gates for creation of complex logic flows
- Control protocol for third-party integration, including Device Emulators
- Automatic router table generation
- Appliance version offers dual Gigabit Ethernet ports and dual-redundant power supplies
- Virtual routing for customized views of key audio flows
- Customizable user panels
- Includes 500 crosspoint and 500 Logic Flow endpoints
- Add-on licenses for additional 500 crosspoints 500 Logic Flow endpoints available

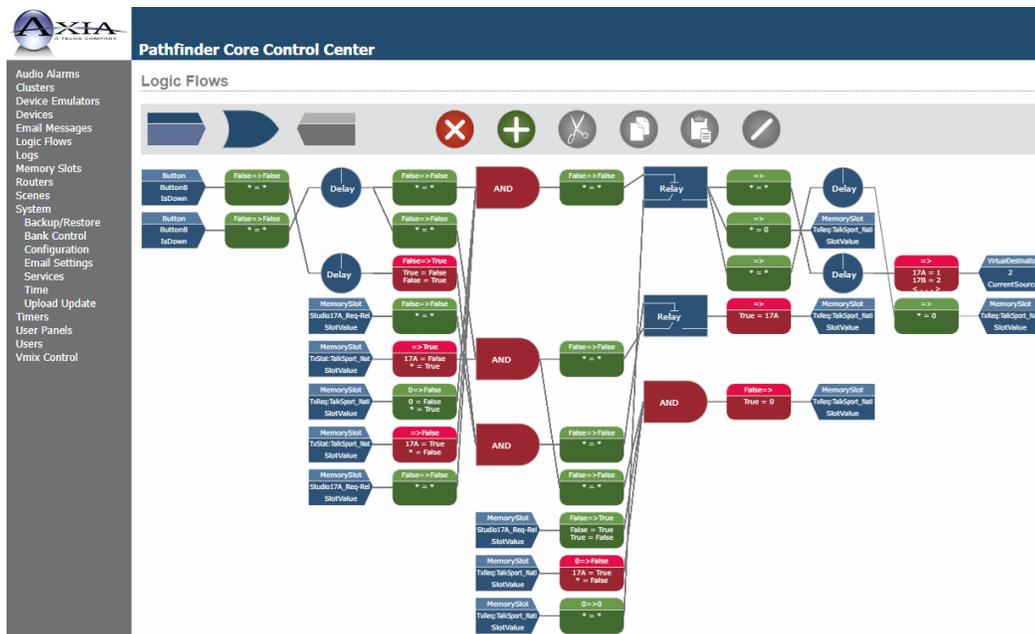
# IN DEPTH

## PC-Free

The Axia Pathfinder Core PRO appliance is ideal for stations that want reliable, redundant, system-wide routing control that is purpose built. The Linux-based network-attached appliance for routing control includes a web user interface to provide route control and customize logic events. Because it uses a web interface, Pathfinder Core PRO becomes platform-independent; users can use almost any personal computing device to interface with the appliance for reliable, 24/7 unattended operation. Customizable function panels are based on HTML5 and can be accessed from almost any computing device with access to the network.

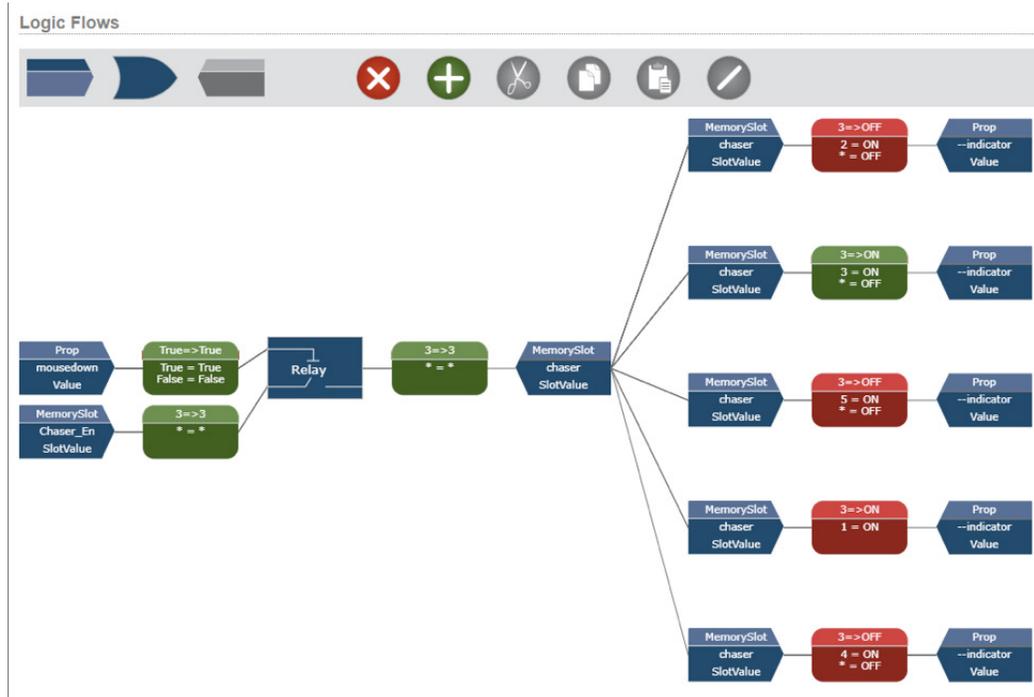
## Logic Flows

Pathfinder Core PRO features Logic Flows, an all-new events system that uses logic gates for the creation of complex logic and dramatically simplifies route changes. The Logic Flows event system features a graphical flow-chart style that allows you to see the connections and manipulate them easier, as well as see state changes in real time via the web interface. For example, if an endpoint changes, you will see those changes live via a color and/or textual change on the Logic Flow graphic. Logic Flows are intelligent enough to sense the connections between different flows and present those connections graphically with a much larger array of properties that are available for use. Finally, we have added the ability to clone entire groups of object settings with one simple flow, which becomes invaluable when creating redundant logical paths. These are dramatic improvements over previous versions.



Examples of PDM Logic Flows

## Pathfinder Core PRO | Experience the Power of Simplicity.



Example of airchain switcher

## Device Emulators Control Protocol for Third-Party Integration

Because there are a variety of automation systems that don't understand the Axia language, Pathfinder Core PRO Device Emulators allow the unit to "look like" another protocol, emulating third-party protocols and translating them into the Axia language. When Pathfinder Core PRO receives commands in a non-Axia protocol language, it then makes the requested changes to the Axia equipment, emulating a different kind of device by speaking that language. Additionally the Device Emulators allow the user to define their own commands to send and receive, so Pathfinder Core PRO can be used to control and receive commands from third-party equipment in that way as well. The user simply has to define the textual commands to watch for or send in the Device Emulator.

## Easy Setup

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. Pathfinder Core PRO searches for and finds all of the Axia equipment on the network, then automatically creates both an audio router and a GPIO router with all of the audio or GPIO sources and destinations that are discovered within that equipment, simplifying the initial configuration.

Pathfinder Core PRO also gives you peace of mind by providing distributed redundancy within your network. Multiple Pathfinder Core PRO 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 from concerns about software compatibility, automatic OS patches, and computer hardware limitations.

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## Customizable User Panels

In addition to advanced routing control, Pathfinder Core PRO lets users create their own user panels, giving them a unique and customized look and design for features like meters and buttons.

## Virtual Routing

Aside from routing physical inputs and outputs, Pathfinder Core PRO lets you create virtual routers. For example, if a specific room in a facility doesn't need to see the entire network of inputs and outputs, but only the ones relevant to that room, then a Pathfinder administrator can create a virtual router that only includes the sources and destinations required by that room. In addition, virtual routers can be used to marry multiple sources and destinations together into routable packages. For example, you can create a virtual source that has both an actual audio source and an actual GPIO source as part of its package. Then when you create a route with the virtual router, the audio and GPIO get routed together with one route change.

## Memory Slots

Memory Slots allow you to store—and make changes based on—custom pieces of information. Memory Slots have been expanded in Pathfinder Core PRO to provide easy latching capability of any property in the system, to follow the state of any property in the system, and to build custom text by combining values from multiple slots together. This makes the use of Memory Slots more powerful than ever.

## 500 Crosspoints, 500 Logic Rules

With Pathfinder Core PRO, you get 500 sources and 500 endpoint change blocks (within Logic Flows). Need more? You can simply buy an extension license to add more logic or more crosspoints. Note: There are a variety of crosspoints that don't count against the license, including GPIO and virtual-only ones. Only Axia audio sources count against the crosspoint license.)



## FAQs

### **Is Pathfinder required to run my Axia network?**

No, Axia networks are self-contained routing and mixing systems 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 Core PRO lets you consolidate control of your network operations, bringing all of your equipment together under one simple interface to create the most flexible workflows imaginable. It takes all of your Axia nodes and equipment and presents them as if they 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.

### **Can I trigger routing changes from studio consoles?**

Yes. There are a variety of drop-in modules for our popular Axia Fusion consoles that you can use to change single routes, or execute predefined salvos based on time-of-day or GPIO. 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, including Silence, Audio Presence, and Clipping on Axia sources and destinations. With it, you can pick any audio stream in your network—say, your Program-1 output—and monitor it for signal loss. Once your "silence" condition is met, Pathfinder can take action by switching to a different audio input, flashing an alert to talent, or sending you an e-mail.

### **Can Pathfinder react to a system command? I'm thinking about EAS activation...**

Sure. You can define Logic Flows, in which Pathfinder Core PRO monitors GPI channels for external commands and takes action when predefined conditions are met. So you could use a logic flow to watch the GPIO 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.

Additionally Pathfinder Core PRO provides generic Device Emulators that allow you to define custom commands to send and watch for on a tcp port. So your automation system can send any command you desire and Pathfinder Core PRO can detect that command, act upon it with any action you see fit via a Logic Flow, and reply back with another custom command.

Finally, Pathfinder Core PRO provides an advanced control protocol that exposes everything you might want an outside system to control.

### **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.

## Does Pathfinder Core PRO support SNMP, AES70, or other protocols?

Pathfinder Core PRO supports Axia and other protocols to allow you to create highly customized workflows. As the industry is learning the importance of common tools, open protocols are becoming hot topics. Pathfinder Core PRO was designed with an open architecture to easily incorporate other protocols. Pathfinder Core PRO includes Device Emulators (protocol translators) with multi-protocol support that can be used to send and receive *any* data.

## SPECIFICATIONS

### Power Supply AC Input

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

### Operating Temperatures

- 0 degrees C to +50 degrees C, <90% humidity, no condensation

### Dimensions

- W19.00in (48.0 cm), H 1.75 in (4.40 cm), D 15.50 in (39.4 cm)
- 1RU