iPlay

Network Audio Stream Player

Document Version 1.0.1, June 2014
iPlay Versions 1.0.x

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If you call Axia Support with a software question, we strongly recommend being near your computer when you call, so our Support Engineers can verify information about your configuration and the conditions under which the problem occurs. Please have your software license key handy.

Feedback is welcome

At Axia, we love to hear your feedback. If you find anything in this manual that you feel needs clarification or correction, please let me know: e-mail cnovak@AxiaAudio.com .

About This Manual

This manual covers setup and use of Axia iPlay software. It is assumed in this document that you are familiar with Livewire's basic concepts, as outlined in the companion *Introduction to Livewire: Systems Primer*.

If you have not done so, please review that material first. In it we explain the ideas that motivated Livewire and how you can use and benefit from it, as well as nitty-gritty details about wiring, connectors, and the like. Since Livewire is built on standard networks, we also help you to understand general network engineering so that you have the full background for Livewire's fundamentals. After reading *Introduction to Livewire* you will know what's up when you are speaking with gear vendors and the network guys that are often hanging around radio stations these days.

As always, we welcome your suggestions for improvement. Contact Axia Audio with your comments:

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A Note From The Vice President of Axia

2013 marks a banner year for Axia — this year marks the first decade of the Connected Studio.

In retrospect, it's hard to believe it's been 10 years since a start-up division of Telos grabbed everyone's attention with a radical idea about building radio studios using Ethernet. At a time when "state of the art" meant discrete digital audio, and a routing switcher was something only the richest stations could afford, Axia shocked everyone with the idea that studio peripherals from the console to the audio processor could be networked, and that everyone could have the benefits of a routing switcher — for about a third of the cost of traditional technology.

When we launched Axia, Telos founder Steve Church made a prediction. "Three things will happen," Steve told us. "First, people will say that 'it will never work.' When they're proven wrong, they'll say 'It works, but you don't need that.' And finally, as they see Axia becoming successful, they'll say 'IP-Audio? We do that too!'"

Steve, as always, was right on the money. In 10 years, Axia Livewire has become the world's most popular IP-Audio networking technology, and our mixing consoles are the world's best-selling — they're on-air in over 4,000 studios, and counting. You'll find Axia equipment everywhere: at privately-owned stations, and large clusters run by big conglomerates. At established public broadcasters, and at newly-licensed International stations. At government broadcast facilities, and podcast studios. Needless to say, we're humbled by the trust broadcasters place in us — and by your enthusiasm!

Being first with new technology is nice, but we've never been content to rest on our laurels. So the Telos R&D team continues to innovate and expand the scope of IP-Audio. Axia consoles are the first and only IP-Audio consoles with a pre-configured network switch built in, to save broadcasters the effort and expense of procuring and programming third-party switches. Our compact xNode AoIP interfaces feature one-button setup, and can run on mains power or Power over Ethernet (PoE) for flexibility and redundancy. We've even developed our own zero-configuration Ethernet switch for Livewire – xSwitch – to make deploying IP-Audio easier than ever.

More than 45 Livewire partners believe in the vision of the Connected Studio too. Collectively, they make dozens of hardware and software products (ranging from telephone systems to audio processors to program automation) that interoperate directly with Axia networks via Ethernet – making the connections "smart", and eliminating the need to purchase audio conversion devices. We've also partnered with the high-performance audio standard RAVENNA to expand broadcasters' networking options even further. And there are a lot more great new ideas in the cooker — so watch this space!

In the final analysis, Axia's success isn't due to our efforts. It's you, the broadcast professional, who has embraced our vision, used our technology in ways we never dreamed of, and raved about Axia products to everyone who'd listen. We owe you a huge debt of thanks. And we promise to never stop trying to amaze and delight you.

So here's to the next 10 years.
Onward and upward!

Marty Sacks
Vice President, Axia Audio

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TCP/IP,

How did we live without thee?

Analogicly.

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Chapter One:

Introduction and Installation

Introduction

Axia iPlay is a software interface between your Livewire network and your Windows PC audio device. It provides a way to listen to Axia audio streams without the installation of Axia's IP audio driver. iPlay is used in cases where a user does not need to add any new audio streams to the network. iPlay is designed to provide economical "listen-only" capability where it is needed.

iPlay includes the following functions:

- Automatic detection of Livewire sources.
- User friendly interface that allows filtering and sorting Livewire channels making it easy to navigate in big systems containing hundreds Livewire channels.
- Preset buttons that allow quick access to eight pre-selected channels.
- Playback of Livewire audio sources.
- Restricted access by use of Access Control Lists.

A Livewire system incorporates at least two types of audio streams. **Standard Streams** are best suited to iPlay since Windows can handle this type of stream without difficulty. The ability to preview or play Livestreams is highly dependent on the available resources and performance of your PC. Many iPlay users can preview **Livestreams** with no problems.

Axia iPlay 1.0.x supports the following Operating System platforms:

- Microsoft Windows 2000 Professional
- Microsoft Windows XP Professional Edition (32-bit, standard)
- Microsoft Windows XP Home Edition
- Microsoft Windows 2003 Server R2

Installing iPlay

If you are running a recent version of your Windows operating system, or have installed the latest service pack from Microsoft, your installation will go smoothly. In the rare cases where the installer gives an error message indicating that the installer is outdated, you must update your operating system using Microsoft's update service. It is generally considered good practise to install the latest service pack from Microsoft.

Note that iPlay is licensed for each individual installation and a unique key will be required each time you install iPlay.

To install the Axia iPlay follow these steps:

1. Insert your Axia iPlay CD. If auto-play is disabled, you can browse the CD and double-click *Axiaiply.Msi* to start the installation process. Use *NEXT* button to proceed with the installation.

Figure 1-1: Installation Wizard

2. Review and accept the conditions of the End Users License Agreement - shown in Figure 1-2 on the following page.

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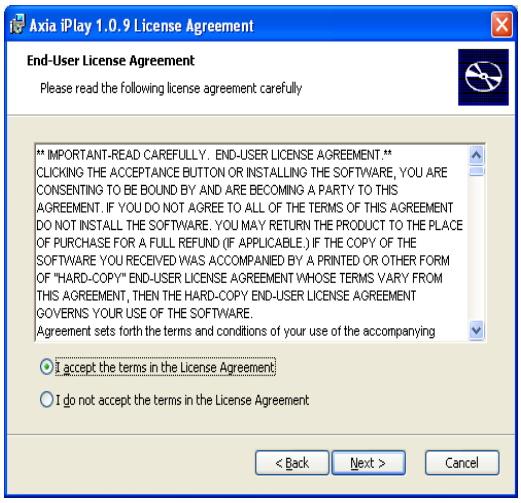

Figure 1-2: License Agreement

3. Choose the desired installation. “Typical” setup is recommended and acceptable for most users.

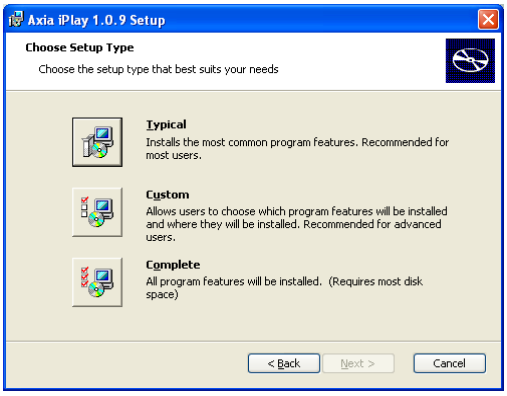

Figure 1-3: Installation Type

4. You will be prompted for your license number and license key. Enter this information and press *OK* to proceed with the installation

Figure 1-4: iPlay Registration

All iPlay license numbers and keys are intended for “single-user” licensing and are unique for each iPlay installation.

5. Select *Finish* to complete the installation and proceed with configuration described on the next page.

Removing Axia iPlay 1.0.x

1. From the Windows Control Panel, launch the *Add-Remove Programs* .
2. Select Axia iPlay, and click “Remove”.
3. All components installed in your system will be removed automatically

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Configuring Axia iPlay

Axia iPlay requires very minimal configuration. All you need to do is select the network card connected to your Livewire network. If your PC has only one network card, no configuration should be necessary. Note that the network adaptor should be wired as opposed to a wireless adaptor. Livewire audio streams require more bandwidth than that provided by most wireless connections.

Basic Configuration

In a small network with only a few studios, no special configuration is required.

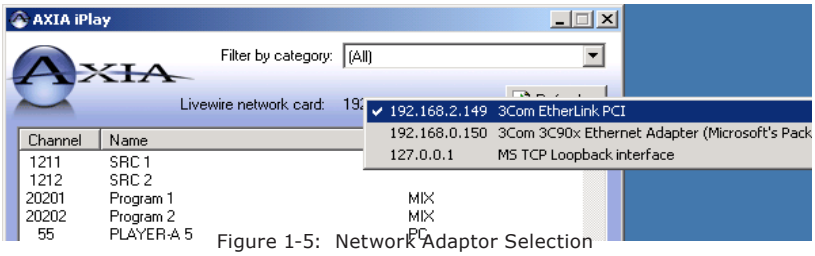

Figure 1-5: Network Adaptor Selection

To begin, simply start iPlay. If you have multiple network adaptors and if the IP address shown at the top of the window does not correspond to the network card connected to your Livewire network, click on it, and a selection list will pop-up as shown in Figure 1-5.

As soon as appropriate network interface is selected, Livewire channels should appear on the list. There may be a few seconds delay before they are detected since Livewire sources are advertised approximately every 10 seconds.

The basic configuration will give iPlay users access to all Livewire channels in your network. If you wish to restrict access - read on! That information is contained in the following section.

Access Control List

In a larger network with several studios, it may be desirable to restrict the sources available to various iPlay users. This will make iPlay easier to use since only the relevant sources will be available to users. A large installation will have several hundred audio streams and it can be very tedious to scroll through such a long list even though the sources may be categorized. In addition, it is often desirable to limit iPlay stream access for privacy reasons.

iPlay (version 1.0.7 or later) has provision for an access control list that may be implemented in two different ways. The first is by means of a direct registry edit. This is done by adding a specific key that contains the access control list information. The second technique also involves a registry edit however in this case, an external ACL (access control list) file is referenced. Each method has its advantages. We will discuss these two scenarios below.

A registry entry can be created in HKEY_LOCAL_MACHINE\SOFTWARE\Telos Systems\Axia iPlay. This new entry will be a string value named ACL. The data for this new key will consist of a list of specific Live wire source channel numbers and ranges. A basic example looks something like the example shown in Fugure 1-6

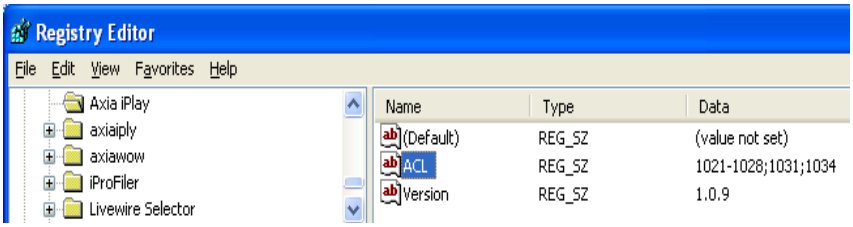

Figure 1-6: Registry Key Configuration

In this example, we are allowing the iPlay user to access only channels 1031, 1034 and the range of 1021 through 1028. The channels and ranges can be anything you choose. Note that all users on a specific machine will be limited by this ACL.

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Another way to accomplish access control is to create an ACL file that can be located locally or on a server, and then reference that file in the registry. In the example shown in Figure 1-7, we have created an ACL file named **iplay_ACL.txt**. This file is referenced in the registry by creating a registry key in a similar manner as outlined above however instead of listing the ACL right in the registry, we specify the location and name of the external ACL file. The data of the registry key will be in the format of **file://\\[server]\[share]\[ACL file name]**. The server may be specified by using its name or IP address. Since it is the purpose of the ACL to provide a level of security, a server location with controlled permissions is recommended.

The ACL file itself is a plain text file. An example of a basic ACL file is shown below where we have specified two channel ranges and two individual channel numbers. You can make this access control file as simple or complex as you wish. The order of the entries in the list is of no significance. Comments in the ACL file are preceeded by a semi-colon character.

```
; i-Play Access Control List
; List permitted channels and ranges below
allow 1038
allow 1035
allow 1021-1028
allow 11101-11105
```

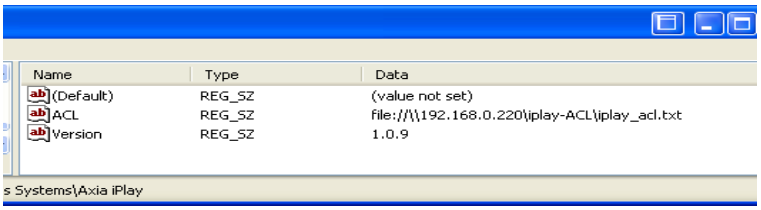

Figure 1-7: ACL File Setup

The results of using an ACL like this are shown in FIgure 1-8. You can see that the number of sources presented to the user is small. The user does not have access all sources in the Livewire network or even to sources outside a specific studio.

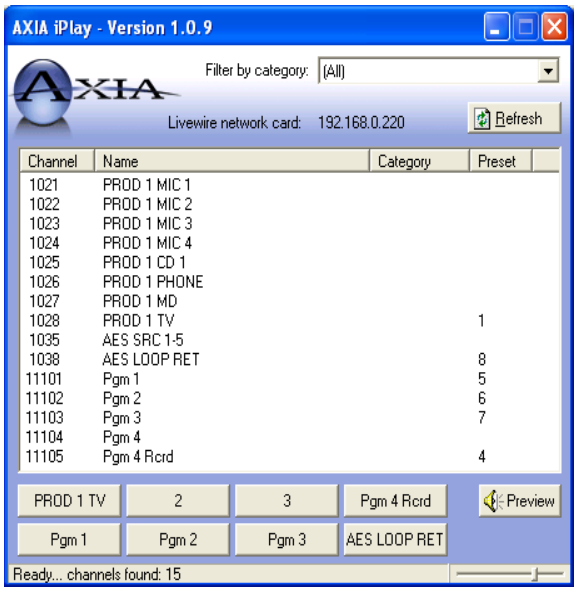

Figure 1-8: iPlay with ACL in effect

An example where limited access might be helpful is in the case of a News workstation. You may wish to give that user access to all satellite and TV audio feeds and possibly your studio PGM 1 feeds and block the user from all raw microphone feeds and other in-studio sources.

The implementation of the ACL feature is a powerful tool for ensuring the privacy of your employees.

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Chapter Two:

Operation: Using iPlay

What is iPlay?

iPlay is a tool used for monitoring Livewire audio streams on a standard Windows PC. iPlay will use the default Windows playback device for this purpose. In order to use iPlay, it is necessary to have a network connection directly to the Axia LAN, not just to your Pathfinder server via the "office LAN". In some cases, it may be necessary to have dual NIC's in your PC if you wish to connect to multiple LANs.

General View

The active Livewire channel list is displayed and dynamically updated as new sources are discovered or unused sources are deleted.

Note that new sources will always appear at the end of the list regardless the sort order. If a channel name has been updated, its position on the list will not change regardless the sort order.

You may click **Refresh** to update the view and correct the order of new sources and to eliminate recently deleted sources.

Sorting and Searching

The Livewire channel source list can be sorted by Channel Number, Name or Category. In a manner familiar to most Windows users, simply click the appropriate column header of the list to change the sort order. To see your sources listed in order of their name, click on the **Name** column header. To sort your list by Category, click on the **Category** column header .

While it is useful to sort your source list in various sort orders as described above, it is probably much more useful to define caregories as described in the next section. This way you can list only those sources that belong to a specific group or category and get a small, user-specific list in a couple of clicks.

Some illustrations of the sort and search feature are provided in the following topics.

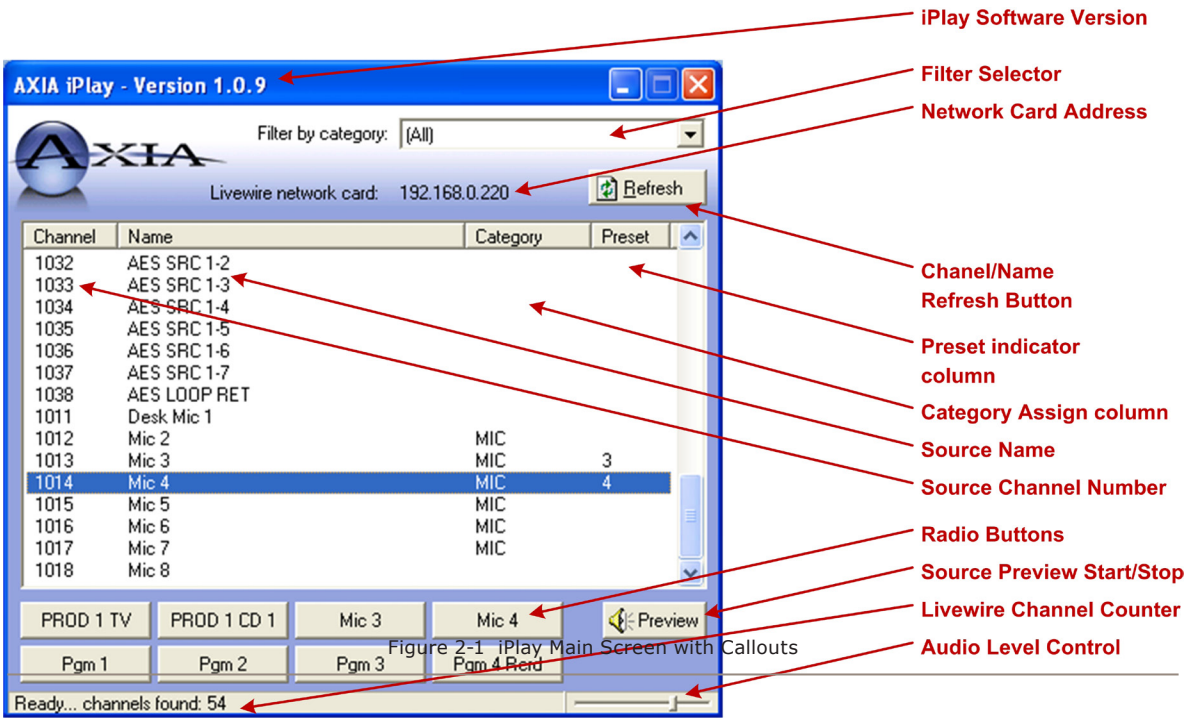

Figure 2-1 iPlay Main Screen with Callouts

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Presets

The user can assign sources to 8 radio buttons and use them in a manner similar Axia's Router Selector node. To assign preset buttons, you can use one of the following methods:

- Click in "Preset" column across from your source of interest and the type radio button number (1 through 8) or select the desired preset button number from the drop-down list.
- Drag and drop the channel on one of radio buttons: Select a channel on the list, push left mouse button down, move cursor over a radio button and release the mouse button.

Since there are eight preset buttons, your are naturally limited to having 8 presets per installation. It is possible, however to Preview any stream without assigning it to a preset. Use presets for your 8 favorite audio sources.

Figure 2-2: Assigning iPlay Presets

To change a Preset button, simply assign or drag/drop a new source to that Preset button

Assigning Categories to Channels

To assign a category to a channel, click on the list in the "Channel" column to select or type a name. If you type a name that did not exist, a new category will be automatically created and it will appear in the filter drop down list.

To clear category assignments, simply clear the text in the edit area.

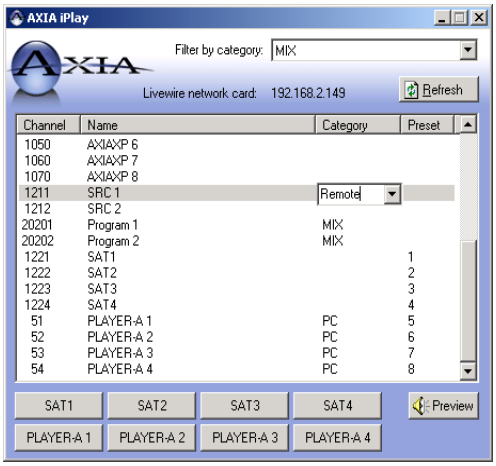

Figure 2-3: Assigning iPlay Categories

Categories are assigned locally on each iPlay workstation. This provides a great deal of flexibility for your users and makes iPlay very fast to use, even in a large network.

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Filtering by Category

Categories are locally assigned by the user to help quickly locate sources. All category names that are in use will appear in the filter drop down box shown below. To restrict your view to a specific category of sources, simply click the category drop-down and select the desired category. The souce list is immediately updated with the new category filtering applied and you will see only the sources that belong to the category you have selected.

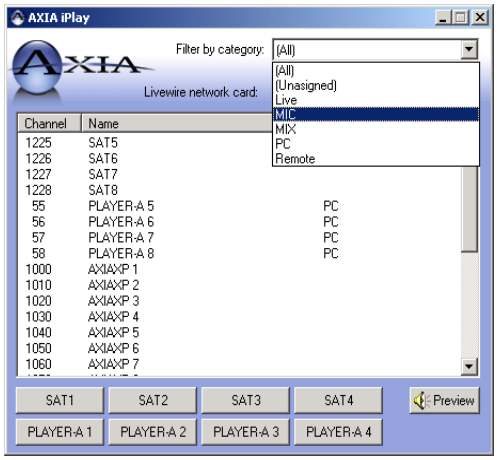

Figure 2-4: Filtering by Category

Once you have applied a filter, the list of sources might look like Figure 2.5. You still have the same 8 preset buttons and now you have another specific list of sources that you may preview.

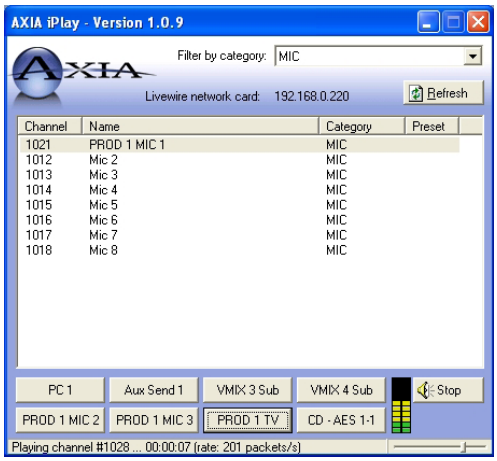

Figure 2-5: Filtered List of Sources

Preview

This is the single function of iPlay that you will use the most. It is very quick since many of the other features of iPlay are designed to make this one really fast and easy.

To quickly preview a source, select it on the list and click **Preview**. The preview button changes to **Stop** as soon as the audio preview begins. Use this same button to stop the audio preview.

To play a channel assigned to a radio preset button, simply click appropriate radio button.

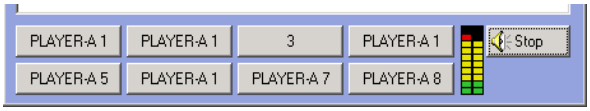

Figure 2-6: Previewing an Audio Stream

While playing back, an audio level meter is visible. This meter shows the peak value. Yellow segments indicate the nominal operating range from –38dBFS to –20dBFS.

To impress your friends, you can also point out how many packets per second are being processed by iPlay. This information is displayed on the small status bar at the bottom of the window below the preset buttons. As a matter of interest to the geek in all of us, a Livestream is approximately 4000 packets per second and a Standard Stream is 200 packets/sec.

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Cheap network printer:,

Works great but rage flares brightly;

Toner bill just came..

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Appendix A: Livewire Ports

Standard ports are used for specific functions within the Livewire system. Here is a summary of the ports and their use. If you have installed an Axia application with your Windows firewall enabled, the applications and ports will be automatically added to your Windows firewall exceptions. If your installation has been performed with the Windows firewall disabled and you have subsequently enable the firewall, you may have to perform some tweaking of the firewall to get things operating normally. This information will be helpful in that case or in the event that you are using some other firewall.

67,68	UDP	BOOTP Server/Client - Remote IP address assignment
93	TCP	Livewire Routing Protocol
123	UDP	NTP
514	UDP	Syslog logging
2055	UDP	Multicast based GPIO (CMsg2 protocol) (mcast on 239.192.255.4) - GPIO commands from GPIO node to console-type endpoint
2060	UDP	Multicast based GPIO (CMsg2 protocol) (mcast on 239.192.255.4) - GPIO commands from console-type endpoint to GPIO node
4000	UDP	Livewire Advertisement and Source Allocation Protocol - Full info advertisement requests and source allocation requests
4001	UDP	Livewire Advertisement and Source Allocation Protocol (mcast on 239.192.255.3) - Periodic announcements and full info advertisements - Source allocation state announcements and responses
4002	UDP	Engine supervision protocol (mcast on 239.192.255.3)
4010	TCP	Livewire Control Protocol
4011	UDP	LWCP for Accessory Modules (from module to console) (mcast on 239.192.255.4)
4012	UDP	LWCP for Accessory Modules (from console to module) (mcast on 239.192.255.4)
5004	UDP	RTP Livewire Audio
7000	UDP	Livewire Clock
9997	TCP	Protocol logging (for debug) in Element

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Appendix B: Warranty

Telos Alliance Limited Warranty

This Warranty covers "the Products," which are defined as the various audio equipment, parts, software and accessories manufactured, sold and/or distributed by or on behalf of TLS Corp. and its affiliated companies, collectively doing business as The Telos Alliance (hereinafter "Telos").

With the exception of software-only items, the Products are warranted to be free from defects in material and workmanship for a period of five (5) years from the date of receipt of such Product by the end-user (such date of receipt the "Receipt Date"). Software-only items are warranted to be free from defects in material and workmanship for a period of 90 days from the Receipt Date. Telos will repair or replace (in its discretion) defective Products returned to Telos within the warranty period, subject to the provisions and limitations set forth herein.

This warranty will be void if the Product: (i) has been subjected, directly or indirectly, to Acts of God, including (without limitation) lightning strikes or resultant power surges; (ii) has been improperly installed or misused, including (without limitation) the failure to use telephone and power line surge protection devices; (iii) has been damaged by accident or neglect. As with all sensitive electronic equipment, to help prevent damage and or loss of data, we strongly recommend the use of an uninterruptible power supply (UPS) with all of our Products. Telos products are to be used with registered protective interface devices which satisfy regulatory requirements in their country of use.

This Warranty is void if the associated equipment was purchased or otherwise obtained through sales channels not authorized by Telos.

EXCEPT FOR THE ABOVE-STATED EXPRESS WARRANTY, TELOS MAKES NO WARRANTIES, EXPRESS OR IMPLIED (INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE).

In no event will Telos, its directors, officers, employees, agents, owners, consultants or advisors (its "Affiliates"), or authorized dealers or their respective Affiliates, be liable for incidental or consequential damages, or for loss, damage, or expense directly or indirectly arising from the use of any Product or the inability to use any Product either separately or in combination with other equipment or materials, or from any other cause.

In order to invoke this Warranty, the Product must be registered via Telos' website (found at: http://telosalliance.com/legal/warranty) at time of receipt by end-user and notice of a warranty claim must be received by Telos within the above stated warranty period and warranty coverage must be authorized by Telos. Contact may be made via email: support@telosalliance.com or via telephone: (+1) 216-241-7225. If Telos authorizes the performance of warranty service, the defective Product must be delivered to: Telos, 1241 Superior Avenue, Cleveland, Ohio 44114 or other company repair center as may be specified by Telos at the time of claim.

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Shipping Costs and Warranty Service:

If the date the customer's notice of warranty claim is received by Telos (such date the "Warranty Claim Notice Date") is within the first 90 days following the Receipt Date, Telos will pay the costs of shipping such warranted Product to and from the end user's location, and the cost of repair or replacement of such warranted Product.

If the Warranty Claim Notice Date occurs after the first 90 days following the Receipt Date and before the end of the second (2nd) year, the customer will pay the freight to return the warranted Product to Telos. Telos will then, at its sole discretion, repair or replace the warranted Product and return it to the end user at Telos' expense.

If the Warranty Claim Notice Date occurs between the end of the second (2nd) year following the Receipt Date and the completion of the fifth (5th) year, the customer will pay the costs of shipping such warranted Product to and from the end user's location. Telos will then, in its sole discretion, repair or replace the warranted Product at Telos' expense. Telos also reserves the right, if it is not economically justifiable to repair the warranted Product, to offer a replacement product of comparable performance and condition direct to the customer at a discounted price, accepting the failed warranted Product as a trade-in.

The end user will in all cases be responsible for all duties and taxes associated with the shipment, return and servicing of the warranted Product.

No distributor, dealer, or reseller of Telos products is authorized under any circumstances to extend, expand or otherwise modify in any way the warranty provided by Telos, and any attempt to do so is null and void and shall not be effective as against Telos or its Affiliates.

Out of warranty units returned to the factory for repair may be subject to a $500 evaluation fee, which fee must be prepaid prior to shipping the unit to Telos. If no repairs are required, the $500 fee will be retained by Telos as an evaluation charge. If repairs are required, the $500 fee will be applied to the total cost of the repair.

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