



Renkus-Heinz Audio Operations Network

Version 1.6.4

Installation & Troubleshooting Guide

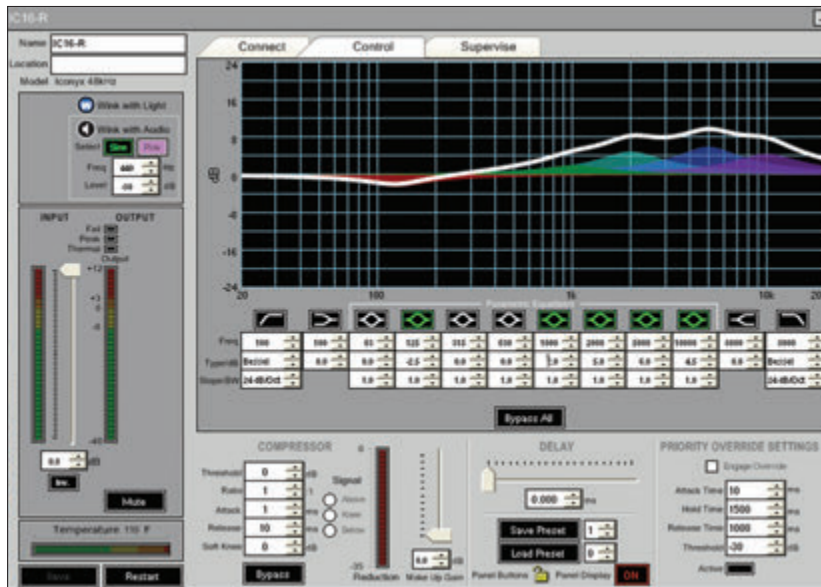


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RHAON Installation and Troubleshooting Guide

This guide will take you through the process of firing up your RHAON equipped system for the first time and help you find and resolve any startup problems.

Most startup problems are either setup or network problems and not Iconyx or RHAON problems. Your RHAON equipped loudspeakers were carefully tested before they left our factory and are rarely the source of a problem. Nevertheless, it's always wise to check out each loudspeaker before it's actually installed. It's a lot easier to check out a problem in your shop than it is when it's installed 40 feet in the air.

A few Words about Networking

RHAON connects your computer and loudspeakers together over an Ethernet network using standard Ethernet hardware and CobraNet technology. Ethernet is a frame-based computer networking system that communicates by sending uniquely addressed packets of information from a source to a destination. Devices on the network (Loudspeakers, switches, sources, etc.) are addressed by a Machine Access Code (MAC address) that is burned into them by the manufacturer of the device. Devices on an Ethernet network also need an Internet Protocol address (IP address). In RHAON systems, IP address assignments are handled by RHAON

CobraNet is a protocol and associated firmware and hardware that allows digital audio and control information to be sent over an Ethernet network as Ethernet packets. Note that the distribution of Digital Audio and the control and supervision of the associated RHAON equipped loudspeakers are two separate functions.

For more information on Networking, refer to pages 8 & 9 of this document or to the User's manual for your loudspeakers.

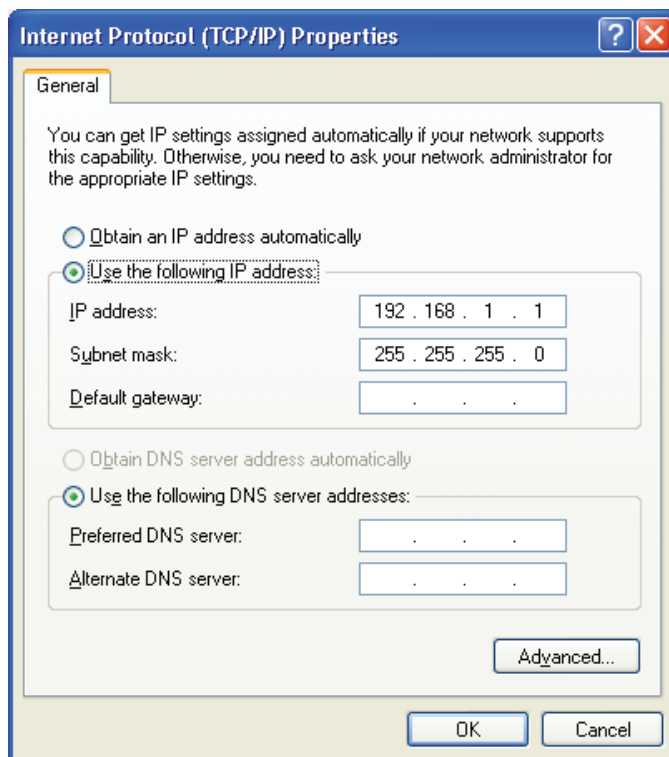
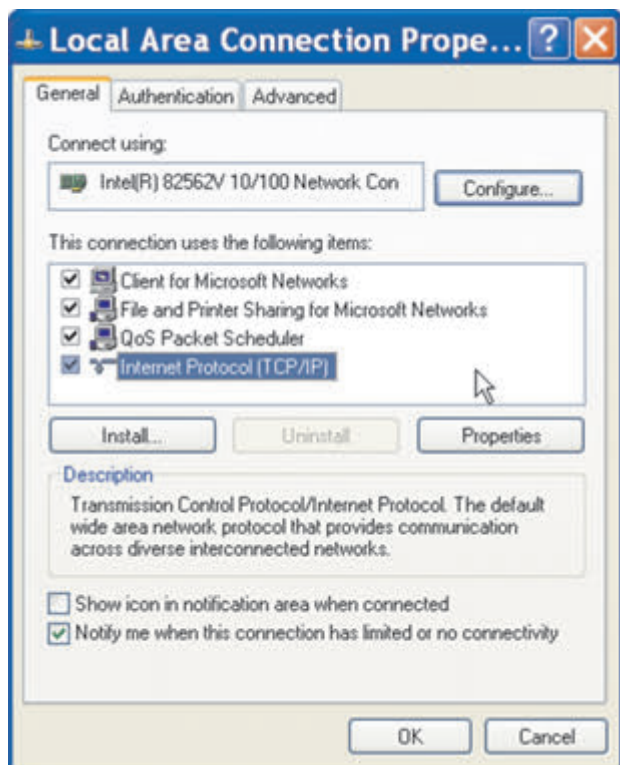
Computer Setup

CobraNet requires a WIRED connection to the network. Wi-Fi doesn't have sufficient bandwidth to handle CobraNet.

Your RHAON computer must have a NIC (Network Interface Card) and it must be properly configured with a private IP address.

If you are running Windows XP go to Start: Settings\Control Panel\Network Connections\Local Area Connection and click on Properties, Verify that the correct NIC card is selected, then select Internet Protocol (TCP/IP), click on Properties, Click on "Use the following IP Address" and enter: IP address: 192.168.1.1 ; Subnet mask: 255.255.255.0; leave the other fields blank.

If you are running Windows 7 or Vista, go to Start: Settings\Control Panel\All Control Panel Items\Network and Sharing Center\Local Area Connection, click on Properties. Verify that the correct NIC card is selected, then select Internet Protocol Version 4, click on Properties, click "Use the following IP Address" and enter: IP address: 192.168.1.1 ; Subnet mask: 255.255.255.0; leave the other fields blank.



IP Address Setup.

The next step is to check your computer for third party virus checker or firewall software. CobraNet uses “packets” to communicate and many versions of Zone Alarm, Norton Internet Security and McAfee will block CobraNet packets unless they are correctly configured. We recommend disabling them. The Windows firewall can remain on.

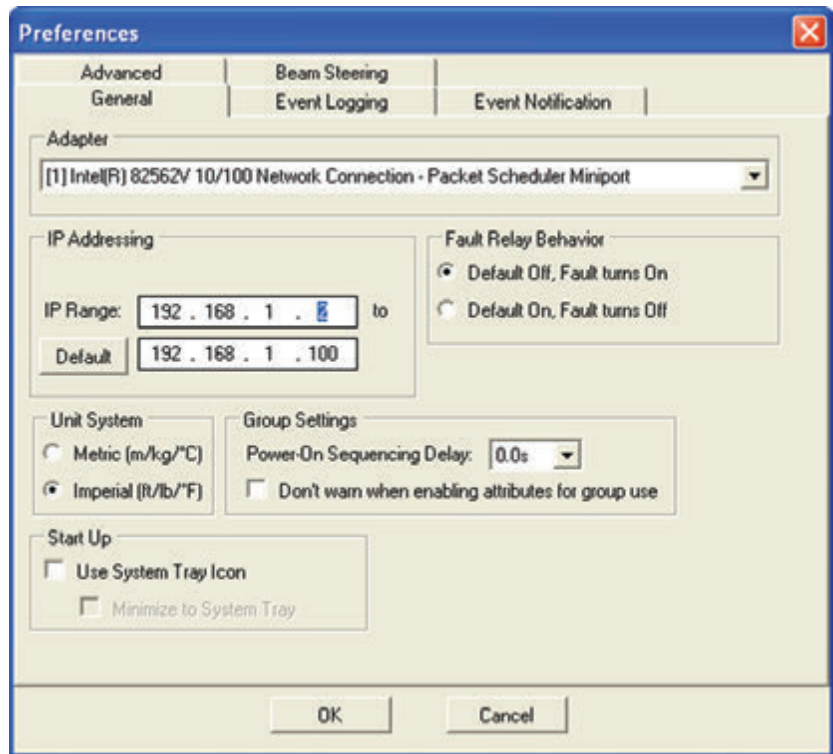
We also recommend that you set your computers Hibernation / Sleep settings to “Never”. If your computer goes to sleep while connected to the network, it may cause some of the CobraNet components to malfunction and your RHAON program start to do weird things. Refer to page 14 for details.

Each device on the RHAON/CobraNet network must have a unique IP Address in order to communicate over the network. RHAON will assign these automatically, but you need to give RHAON a range of acceptable numbers.

Open RHAON and go to Options > Preferences > General and enter a range of IP addresses into the IP Addressing fields. We suggest using 192.168.1.2 and 192.168.1.100.

Note that other private IP Ranges can be used. For detailed information, please refer to the User Manual that came with your Renkus-Heinz loudspeaker.. If you can’t find it, open the RHAON drop down Help file, select RHAON Manuals and then choose the appropriate one. The manuals can also be downloaded from ftp.renkus-heinz.com/Software/RHAON.

Before leaving this window, you also need to check the Adapter listing to make sure the correct NIC is selected. Hint - it should be the one you configured under Computer Setup. Use the drop down arrow to view the choices.



Network Manager

Since most installation and startup problems are network problems and not loudspeaker or RHAON problems, RHAON includes a Network Manager that allows you to check the integrity of the Ethernet network before you actually link to the loudspeakers. It is accessed from RHAON and identifies network problems for you before you waste a lot of time checking out the loudspeakers.

To activate the RHAON Network Manager open RHAON and select Network Manager from the File pull down menu.

The Network Manager will scan the Ethernet network, list all the CobraNet devices it finds on the network and identify them by name and by their MAC and IP numbers. Please refer to the graphic shown on the next page. It also checks for communication errors (dropped packets). Remember, RHAON communicates over the Ethernet network by packets. Any errors detected are counted and listed in the Error column along with a code number identifying the type of error last observed.

In use, the error count will continue to increase as the Network Manager continues to scan the network for errors. The Age column shows in milliseconds how long it has been since the device was checked by the Network Manager. It is normal for the Age numbers to fluctuate rapidly.

Network Manager (cont)

In the example shown below the ICL-FR Left array obviously has a problem while two other devices are showing an occasional glitch. All three need to be checked out and the problems corrected before proceeding.

Age	MAC	IP	Name	Description	Startup IP	Errors	Error Code
750	001bde00080a	192.168.1.5	PN1R-Burn in ra...	RH RHAON 48kHz PN102/LAR v1.40 CobraNet version 2.11.6 CS496112	0.0.0.0	0	--
609	001bde000946	192.168.1.17	4409-2935 Hou...	RH RHAON 48kHz Iconyx v2.12 CobraNet version 2.11.11 CS496112	0.0.0.0	0	--
672	001bde000947	192.168.1.19	4409-2936 Hou...	RH RHAON 48kHz Iconyx v2.06 CobraNet version 2.11.6 CS496112	0.0.0.0	0	--
531	001bde000b12	192.168.1.15	ICL-FR Left	RH RHAON 48kHz ICL-FR v2.34 CobraNet version 2.11.12 CS496112	0.0.0.0	2248..	34
828	001bde000de7	192.168.1.16	CS49611	RH RHAON 48kHz Iconyx v2.12 CobraNet version 2.11.11 CS496112	0.0.0.0	0	--
375	001bde001260	192.168.1.4	CF61 DBL	RH RHAON 96kHz CF81-2R v1.40 CobraNet version 2.11.6 CS496112	0.0.0.0	20	61
141	001ce200052f	192.168.1.21	VoiceBox	Altero Tech VoiceBox 4 I/O CobraNet version 2.11.6 CS496112	0.0.0.0	69	113
219	00602b0402c8	192.168.1.23	Suitcase B0B	Cirrus Logic EV-2/CM-2 (CM18101) CobraNet version 2.11.6 CS496122	0.0.0.0	0	--
453	00602b0402dc	192.168.1.3	Car's B0B	Cirrus Logic EV-2/CM-2 (CM18101) CobraNet version 2.11.6 CS496122	0.0.0.0	0	--

RHAON also includes a reference guide for the Error codes used by the Network Manager. It is accessed from the RHAON Help pull down menu.

**CobraNet Programmer's Reference
Error Code Reference**

9. Error Code Reference

9.1 Legend

Byte Code - Numeric error code. Error codes reported through SNMP or HMI are of varying form must be converted to this common byte code representation as per instructions give in section 9.2 below.

Flash Code - Code as reported in a fatal fault situation. Flash codes are typically only displayed for fatal errors.

Type - Classification and behavior of the error condition.

Table 17. Error Types

Type	Description
TX	Recoverable and expected transmit error

The Startup IP column will show a device's Startup IP address, if a Startup IP has been assigned to it.

IP addresses are normally assigned to the CobraNet devices by RHAON during startup and the assignment(s) will be lost if power is turned off or interrupted. This usually doesn't present a problem since RHAON assigns new addresses as soon as power is restored.

In case this could present a problem RHAON allows Startup IP addresses to be assigned to individual devices. Startup IP addresses will not be lost in case power is interrupted.

To assign a startup ID to a single device, double right click on one of the device's listing to open the dialog box shown to the right. It allows you to assign a specific IP address (a startup IP) to that device.. You can also assign Startup IP addresses to all the devices at one time by clicking on the Command pull down menu and selecting Reset all IP Addresses as Startup.

Manage IP for MAC: 001bde001a83

Current IP: 192.168.1.7

New IP: 192 . 168 . 1 . 7 [Set]

Startup IP: 0.0.0.0

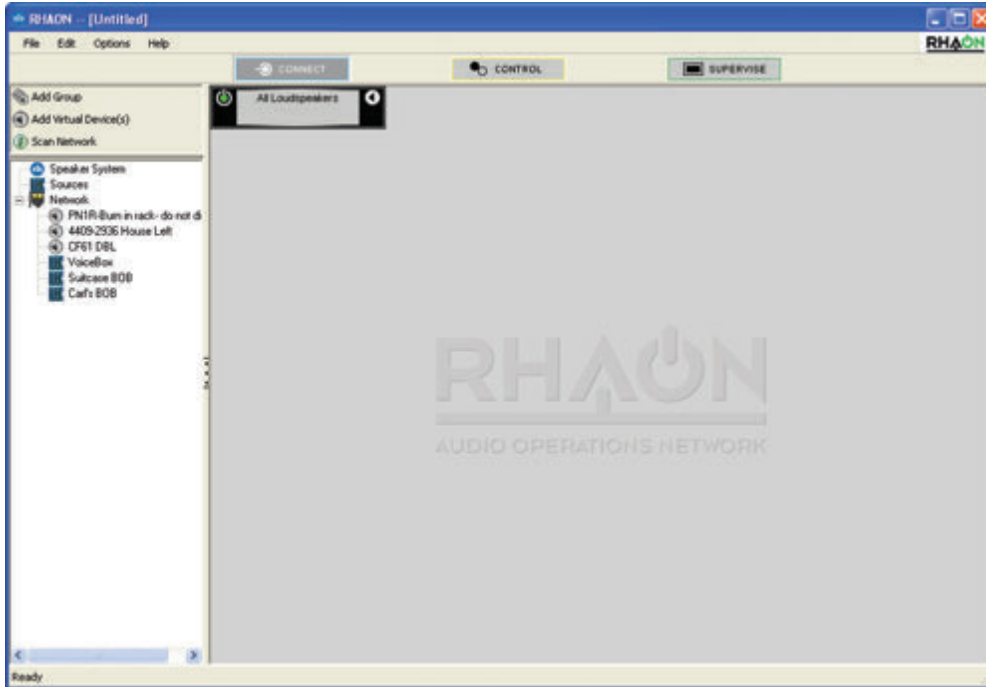
New IP: 0 . 0 . 0 . 0 [Set] [Reset]

[Current IP]

[OK]

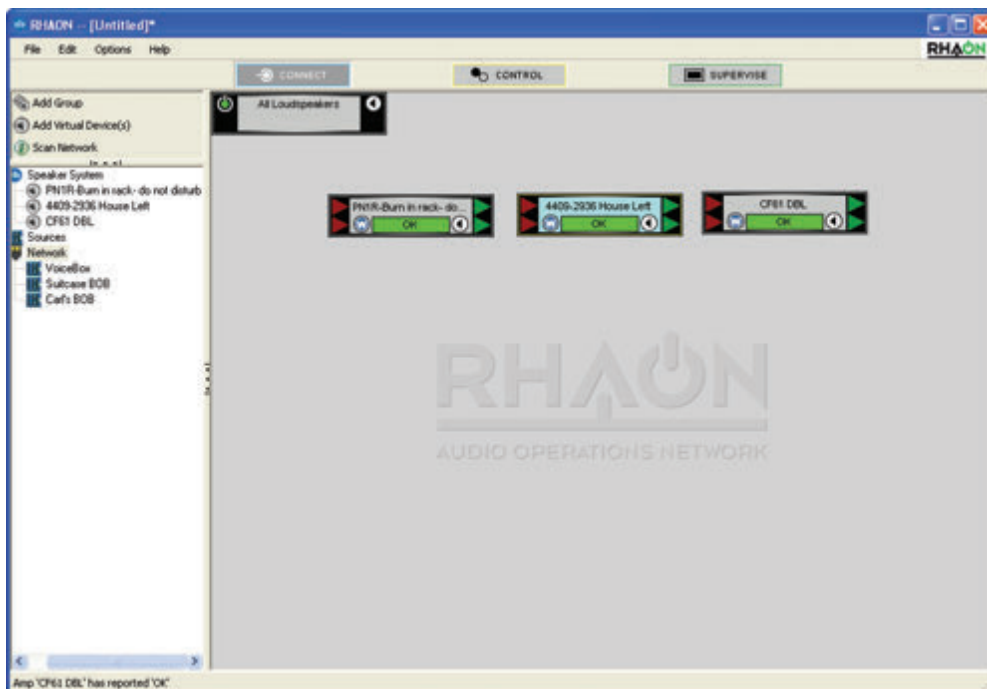
Initial System Connections

Next return to RHAON and click on Scan Network to instruct RHAON to scan the network and list the results in the Network folder of the RHAON directory tree; see below.



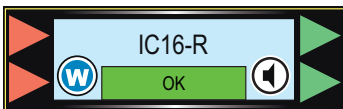
Hint; if RHAON doesn't find any devices but the Network Manager did, it's likely that there is an error in the IP address setup. The Network Manager scans based on MAC (Machine Access Codes) while Scan Network looks for IP numbers.

The next step is to use your mouse to drag the loudspeaker listings from the Network Folder in the directory onto the desktop. This will link the actual loudspeaker and RHAON together and create an Icon for each loudspeaker. You will use these icons to communicate with the loudspeakers and to configure them. If you previously modelled this system in the virtual world icons representing each loudspeaker will already exist in the work space and you will need to drag the network listing for each loudspeaker onto the corresponding icon.



Error Messages

Notice that the status bar on the loudspeaker icon will initially be yellow and read “Syncing”; then it will turn green and read OK.



At least it will turn green unless it picks up a loudspeaker problem. Then it will turn red and display an error message identifying the type of problem it found. Typical error messages are:

COLOR	MESSAGE	STATUS
Green	OK	Everything is OK
YELLOW	Overload	Amplifier is being over driven
RED	Offline	Loudspeaker has lost power or been disconnected from the network
RED	Driver Open	One of the loudspeaker’s drivers has failed
RED	Hot	An amplifier’s over temperature circuitry is engaged
RED	Limiting	An amplifier is being overdriven or malfunctioning
RED	Amp Fail	An amplifier has failed

Double clicking on an icon which shows a malfunction will open one of its Properties Folders; selecting Supervise will open the Supervise window associated with that loudspeaker. The Supervise window for a two-way loudspeaker appears below.

Thermal, Peak & Fail status indicators

Individual test switches for each transducer

Temperature reading

The actual configuration of the loudspeakers is beyond the scope of this installation guide. Please refer to the Users Manual if you need assistance.

Ethernet Systems

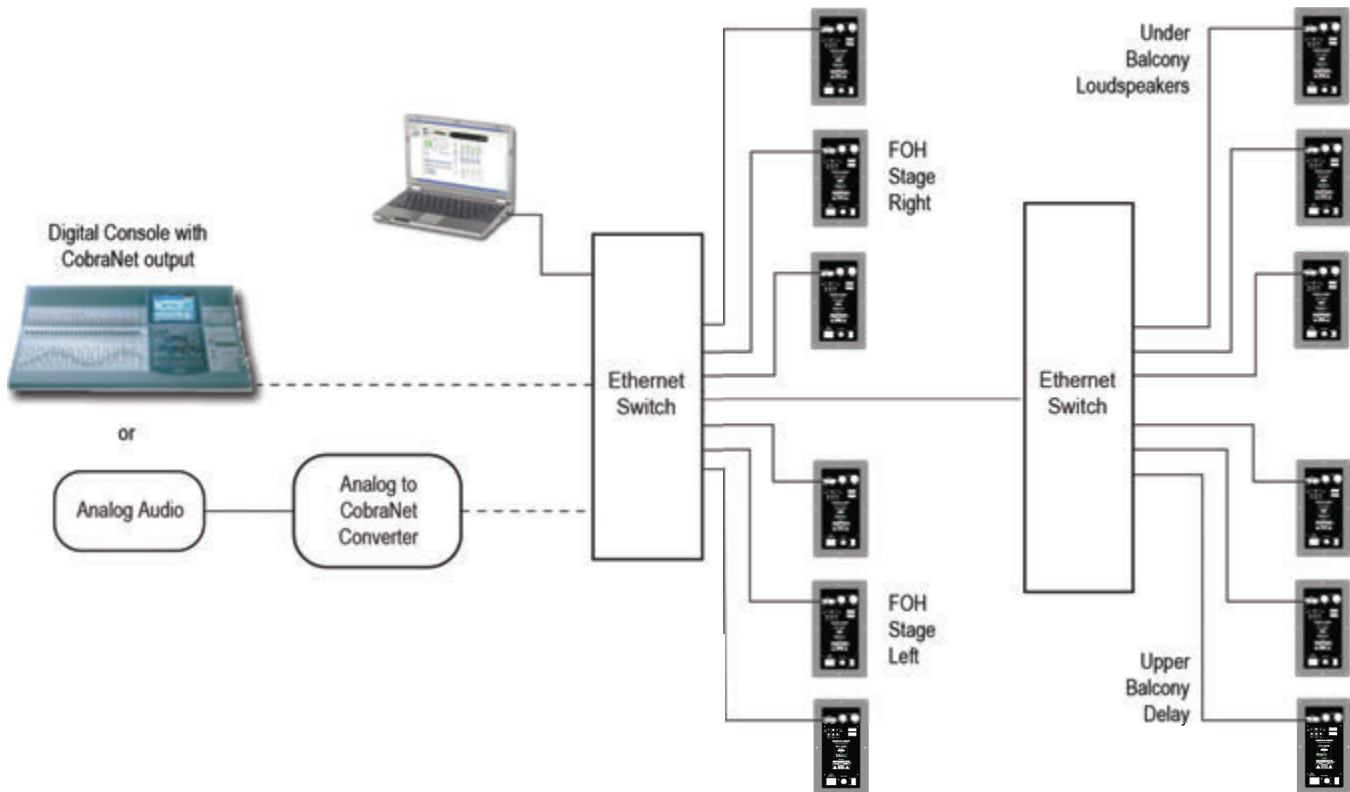
A basic understanding of Local Area networks (LANs), Ethernet networks, packet addressing and CobraNet is critical for successful trouble shooting of RHAON systems.

Ethernet Networks

The Ethernet protocol is a frame-based computer networking technology for local area networks (LANs). This means it is a system for sending uniquely addressed packets of information from a source to a destination, similar to how one sends a letter through the postal service. When you mail a letter to Aunt Gertrude across town, the letter doesn't just go straight from your mailbox to your Aunt's. It goes to the post office, where it is sorted and sent along with Aunt Gertrude's local mailman who then drops it off in her mailbox. The same holds true for networks, only replace "post office" with "network switch".

Switched networks are laid out in a "star" configuration, in that the topology has the switch at the center with links fanning out to all devices and/or other stars. Typical transport media are CAT5 cable (up to 100 m or approximately 325 feet)) or optical fiber (up to more than 2 km). Communication is handled in a "Point-to-Point" fashion, in that each node communicates solely with the next node attached to it. Using our previous example, the letter starts in your mailbox and is picked up by your mailman, who then transports your letter to the post office, where it is sorted and given to Gertrude's mailman, who then drops it off in her mailbox. How do the switches know where to send the packets? By remembering, of course! Just as the letter to Aunt Gertrude includes a "To" and "From" address, so does a packet. The switch remembers which "From" addresses come from which port in order to speed up future traffic.

A typical "Star Wired" RHAON System



System that include both loudspeaker control and supervision and multi-channel digital audio distribution require a suitable Analog to CobraNet converter or a mixing console with a CobraNet output.

Ethernet Systems (cont)

Ethernet Switches

Two of the main distinguishing characteristics between switches are speed and management. The two main speed standards that comprise the majority of RHAON installations are 100Base-T (Fast Ethernet) and 1000Base-T (Gigabit Ethernet). While RHAON device connections are Fast Ethernet, either speed may be used as higher speed switches are backwards compatible with those of lower speeds. The advantage to using Gigabit switches with a RHAON network is that while the individual connections are 100Base-T, the switching times (the time it takes between packet ingress and egress) are much shorter. This becomes especially important from both a hop and total nodes standpoint as the size of a network grows. We recommend Gigabit switches for large networks.

Aside from speed, switches come in two flavors: Managed and Unmanaged. An unmanaged switch is essentially a “dumb” black box that takes packets in and sends them where they need to go. A managed switch, however, allows you much more control. With a managed switch, one can designate subsets of ports as separate networks, control which types of packets are allowed in or out of certain ports, monitor current network traffic conditions, port status, etc. For a great number of installations, an unmanaged switch will suffice. However, for larger or more complex setups, a managed switch becomes critical, though a decent level of networking expertise is required for proper setup.

Packet Addressing

On a Local Area Network (LAN), packets are addressed by the Media Access Control (MAC) address of the network device. MAC addresses are “burnt-in” by the manufacturer of your network device (computer network card, RHAON loudspeaker, etc.) and are globally unique. This is like the VIN on your car. No matter where you register your car, the VIN stays the same and is unlike that for any other vehicle worldwide.

In order to address different devices on different networks, Internet Protocol (IP) addresses were introduced. They allow for easier routing for a vast array of interconnected networks. Similar to this is the license plate on a car. Rather than attempting to search for the car by going through the VINs for every car in the world, one could narrow things down by first selecting the country in which it was registered and then by license plate number within that country. RHAON acts as the license plate authority, if a CobraNet device (RHAON speaker, mixer, etc.) doesn't yet have a “license plate”, it asks RHAON for one and the software kindly obliges. It gives it an IP address.

Packets addressed by MAC address are known as “Ethernet packets”. In addition to information about the source and destination and the payload, there is a marker for what type of Ethernet packet is being sent. Packets that can be sent within or out of the LAN have one identifier and CobraNet packets have another. CobraNet packets don't contain IP information in their payload, so CobraNet is limited to being used within LAN - only networks.. The structure of an IP packet is very similar, in that it contains - among other information - a source address, a destination address, and protocol type. For RHAON, the protocol types of UDP and TCP are the ones in heavy use. Building upon the UDP protocol is the Simple Network Management Protocol (SNMP), which is what RHAON uses to monitor or manipulate exposed variables (EQ, Bundle Assignments, etc.) on a RHAON loudspeaker or other CobraNet device. At each stage in the process of handling a packet, the previous layer is left behind. Once a payload type is determined, just that payload is handed off to the appropriate handler.

To better understand what takes place when RHAON tells a loudspeaker “Set Gain to -10dB”, think of Russian nested dolls. Your computer will send out the whole doll, which contains an IP doll, which contains a UDP doll, which contains an SNMP doll, which contains the message “Set Gain to -10 dB”. When a device sends out a piece of CobraNet audio, it sends out a whole doll, which contains a CobraNet doll, which contains the piece of audio.

With CobraNet, since both devices have a ‘burnt-in’ MAC address, communication can happen right away. For SNMP communication between the computer and RHAON loudspeaker to happen, both devices must have a valid IP address. In most home or office networks, there is a device called a ‘router’ that not only contains a network switch, but can also handle the assignment of IP addresses within its network through a protocol called DHCP. CobraNet (and, by extension, RHAON) uses a different protocol for requesting / assigning IP addresses, but the end result is still the same. Your router has a static IP address assigned to it, devices ask it for an IP, and the router obliges. **For this same reason you must assign a static IP address to your computer.**

Troubleshooting

General Information

Most setup and installation problems are “network problems” and not loudspeaker or RHAON problems.

Your RHAON equipped loudspeaker or array was factory tested before it left our factory and barring shipping damage should be in perfect operating condition.

Nevertheless, if you have the chance it is always a good idea to run a quick check on each loudspeaker before taking it out to the job site and installing it. If you should run into a problem at the site, it’s good to know the problem is in the network or the system wiring and not in the loudspeakers.

To make this easy to do the Analog 1 input on RHAON loudspeakers and arrays is always connected, so it’s a simple matter to connect a line level analog signal to the device and check out its performance

In addition, Preset 10 on single arrays and Preset 20 on dual arrays are set to “Flat” and locked which sends an equal signal to all transducers for use in amplifier and transducer testing. Otherwise, it’s difficult to locate defective amplifiers and transducers as the digital beam steering reduces the drive to some transducers making it difficult to determine if a certain channel has failed or is operating satisfactorily. Because the transducers are located so close together using your fingertips to feel cone vibrations is usually a better way to check than listening.

The most common sources of system hum are the program source or an improper or poor ground on an audio signal line. Check the program source to make sure the hum isn’t originating there. Carefully check all the audio connections to make sure they are properly made.

Most noise problems are the result of improper grounding or of noise being induced into the audio signal line from adjacent noise sources, such as fluorescent lights, and close proximity of the audio signal lines to lines radiating noise. Carefully review all the audio connections and turn off all the lights and any other suspected noise sources.

Since RHAON relies on standard networking communications and hardware along with CobraNet, general networking and CobraNet troubleshooting documents can also be of assistance in solving problems. Don’t throw away any documentation related to the network switches or CobraNet source devices.

CobraNet Discovery

If you are familiar with CobraNet Discovery, you may also want to install and use it as a supplement to the RHAON Network Manager. CobraNet Discovery is a network management program similar to the RHAON Network Manager. Both are invaluable in identifying and solving network problems. If you don’t have CobraNet Discovery, you can download it at no cost from our ftp site, <http://ftp.renkus-heinz.com/Software/CNDisco345.exe> or you can install it from the RHAON CD you received with your loudspeaker.

Be aware, however, that you can not run RHAON and Cobranet Discovery v 4.0 or higher at the same time.

Cable Tester

Shorts, opens and mis-wiring are as much of a problem on networked systems as they are on any audio system and a good cable tester is indispensable.

If you don’t have one, the Klein Tools LAN Scout Jr is a good basic tester that is reasonable priced. For example, you can pick one up at Home Depot for under \$60.00.



Troubleshooting (cont)

Common Problems -- Split Pairs

One common Ethernet system wiring problem is “split pairs” since the Ethernet connector wiring is not intuitive. As you can see from the following graphics the second pair of wires connect to Pins 3 & 6, instead of to Pins 3 & 4 which would be more intuitive.

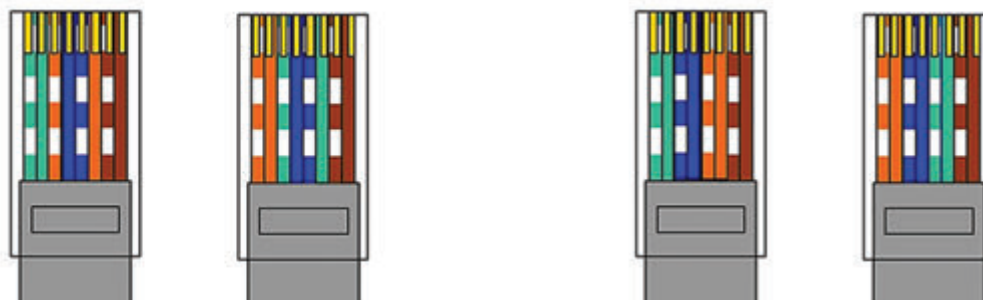
Split pair wiring causes dropped packets even if the offending cable is only a few feet long.

CORRECT WIRING

- Pins 1 & 2 = 1 pair
- Pins 3 & 6 = 1 pair
- Pins 4 & 5 = 1 pair
- Pins 7 & 8 = 1 pair

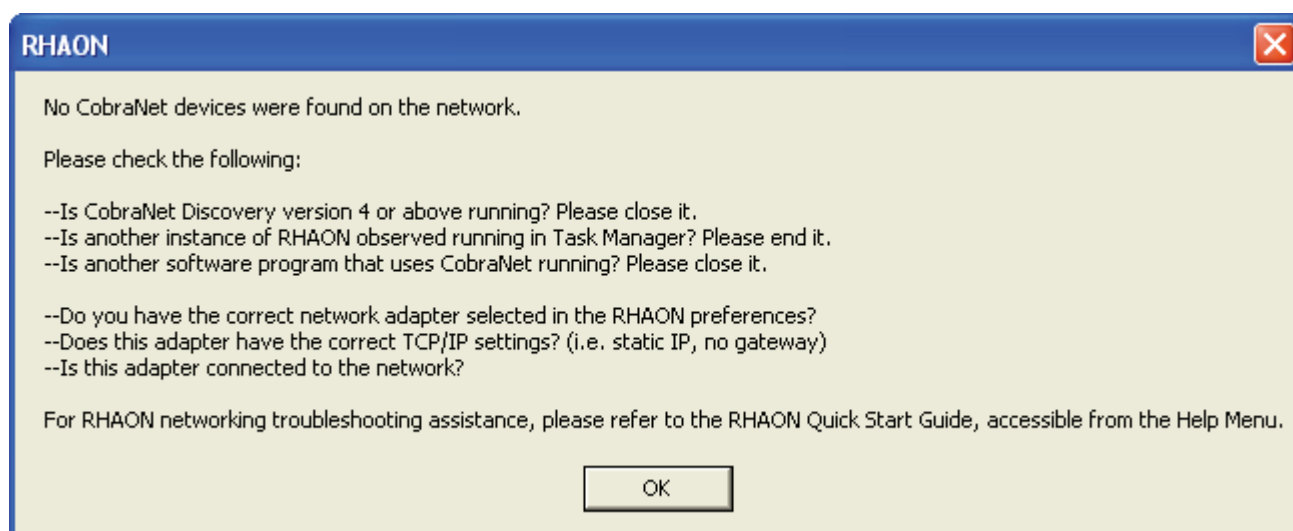
INCORRECT WIRING (Split Pair)

- Pins 1 & 2 = 1 pair
- Pins 3 & 4 = 1 pair
- Pins 5 & 6 = 1 pair
- Pins 7 & 8 = 1 pair



Common Problems - No CobraNet Device Found

A common startup occurrence is the “No CobraNet Devices Found on the Network” error message that pops up when you first attempt to Scan the Network.



Fortunately, this problem is usually easier to solve than it appears to be at first glance. It's usually something simple, such as an interfering software program running (see error message listing) or a NIC setup problem.

Problems & Solutions - FAQ's

Problem or Symptom	Possible Cause / Solution
RHAON says it can't find any CobraNet devices on the network.	<ol style="list-style-type: none"> 1. Are you trying to use a Wi-Fi connection? Switch to a wired connection. You must use a wired Ethernet connection for RHAON as Wi-Fi doesn't have sufficient bandwidth. 2. Have you set up a private IP address on your Ethernet Network Interface Card (NIC)? Recheck your NIC settings. Refer back to page 3 for assistance. 3. Did you select the correct NIC in RHAON? Recheck your selection. In RHAON, go to Options > Preferences > General and make sure the correct NIC is selected.— the same NIC whose setting you checked in step two above. Refer back to page 4 for assistance. 4. Have you set RHAON to manage the correct IP Range? If not, In RHAON go to Options > Preferences > General and set the IP Range to 192.168.1.2 to 192.168.1.100. Refer back to page 4 for assistance. 5. Have you tried the RHAON Network Manager to see if it can find the CobraNet devices? In RHAON select File > Network Manager. Wait for a minute or so; does the list populate with your RHAON/ CobraNet devices? If not, something is blocking CobraNet packets or you have a network problem. 6. Disable any third-party software firewalls and network security software. Versions of Zone Alarm, Norton Internet Security and McAfee Internet Security are known to block CobraNet packets and must be disabled to use RHAON. The Windows Firewall can remain on. 7. If you have disabled any security software and still can't see any CobraNet devices in the Network Manager, simplify your network by connecting directly to a single RHAON device using a known-good cable, bypassing all installed network infrastructure including switches. Many lap tops have auto-switching NICs and do not require a crossover cable. Check the communication lights on the port, rapid flashing green indicates a connection. 8. If you still cannot see any devices in Network Manager and you've double-checked all of the above, you may need to update the drivers for your NIC or try a different NIC.
RHAON devices are slow to synchronize and slow to save.	<p>RHAON can be somewhat sluggish, especially if digital audio is being distributed by CobraNet as CobraNet is given first priority, but if synchronizing and saving take more than 20-30 seconds, you may have a network problem.</p> <p>Start the RHAON Network Manager and look at the error count for all devices. Any device that shows errors has a suspect network connection. Refer to the next Symptom for troubleshooting hints.</p>

Problems & Solutions - FAQ's

Problem or Symptom	Possible Cause / Solution
The Network Manager is showing errors on one or more devices	<ol style="list-style-type: none"> 1. Try a different port on the switch to see if this eliminates the errors. 2. Qualify the cable. The cable must be able to qualify at 100 mbps 3. Check for split pairs. A split pair cable will drop packets even if the cable is only 2 meters long. 4. Re-make the RJ45 connector. A marginal or corroded crimp will cause dropped packets. 5. Check the cable length. The Ethernet standard for unshielded twisted pair copper cables is a maximum 100 meters (330 feet). Copper cables longer than this will not support CobraNet streaming audio.
Both the green and amber LEDs on one of my device's Ethernet port are flashing; on all of the other devices only the green LED is flashing.	<p>This indicates that this RHAON device is acting as the CobraNet Conductor and it is passing signal. Every CobraNet network has a "conductor" to which all the other devices are synchronized. The flashing amber LED indicates this device is the conductor. This is a normal condition.</p>
I can communicate with my Iconyx array, but I get errors when writing beams	<p>This is a classic symptom of network problems. Go to the Network Manager and look at the error count for all devices. Any device that shows errors has a suspect network connection. Review the previous page for troubleshooting tips..</p>
Analog audio sounds like its gating.	<p>You are sending a signal to Analog 1, but some other input is selected in the Connect tab. As an aid to troubleshooting the Analog 1 input will always pass audio, but if some other input is selected, Analog 2 for example, the signal to Analog 1 must exceed a threshold before it turns on. This is why you hear it gating. Select Analog 1 as the input and the gating will stop.</p>
My Iconyx is slowly flashing the blue wink light.	<ol style="list-style-type: none"> 1. You have the Ethernet cable plugged into a slave unit. Either move the cable to the master unit or set the unit with the cable to be the master. Check the DIP switches, there must be only one master and the slaves must be individually identified as slave modules. 2. Did you connect the interconnect cables between the modules and screw down the connectors? If not, you must do this. 3. Has the interconnect ribbon cable been accidentally pinched between the cabinets? If so, it may be damaged and needs replacement.
My IC16R, IC24R, LC32R or IC Live Dual shows up as only a single IC8 or IC Live module.	<p>If the wink light is slowly flashing, you probably have the Ethernet cable plugged into a slave unit. See previous Symptom/Solution.</p> <p>Try Restarting the unit by pressing the Restart button. Double click on its icon and press the Restart button when its properties window opens.</p>

Problems & Solutions - FAQ's

Problem or Symptom Possible Cause / Solution

Some of my RHAON features are not working even though they worked previously. For example, when I try to change Presets the new Preset won't load and I can change my EQ settings but can't save them to the loudspeaker(s).

This indicates your CobraNet components are not functioning properly and communications between your computer and the loudspeakers on the network have been disrupted, a problem caused by your computer having gone into Sleep mode or by some other Windows event. To correct, close RHAON (and, if running, CobraNet Discovery) and bring up the Windows Task Manager (Ctrl-Alt-Delete). Under the "Processes" tab, look for 'PACNDISCO.EXE' and 'PASSBRIDGE.EXE' (Windows may shorten the names and add '~1'). Select them and click "End Process". Proceed to re-open RHAON and/or CobraNet Discovery.

An alternate method of correcting the problem is to Restart the computer. To prevent this from reoccurring set your laptop's Hibernation / Sleep settings to "Never".

Note that this CobraNet malfunction does not affect normal operation and your system will continue to operate normally until you try to change some of the settings.

SWITCH RELATED ISSUES

I placed my RHAON devices on the same network as other devices (venue PCs, lighting, etc.) and now neither RHAON nor the other devices are acting abnormally.

We recommend that your RHAON network be placed on a network separate to that of anything else. If it is absolutely necessary to have them running through the same switch, it is recommended to use a managed switch and set up separate Virtual Local Area Networks (VLANs), grouping the ports you wish to use for RHAON in one VLAN and the ports for other devices in another.

I have set up my VLANs but now I cannot connect to / scan for the RHAON loudspeakers on my network.

1. Verify that the physical ports both your RHAON loudspeakers and your computer are connected to are all on the same VLAN.
2. Verify that SNMP traffic (UDP ports 161 and 162) and CobraNet traffic (Ethernet protocol identifier 0x8819) are allowed on your VLAN. Consult your switch documentation for how to configure VLANs.

I have to wait 10-20s for my device to be "connected" and traffic to begin when connecting my loudspeaker to the switch.

Your switch may have Spanning Tree Protocol (STP) turned on. STP prevents accidental looping in your network topology, but unfortunately needs to run an analysis on any new connection before it is deemed OK to be "on". If you want to avoid the delay and don't need any services STP provides, turn off STP on your switch. Consult your switch documentation for instructions.

Problems & Solutions - FAQ's

Problem or Symptom	Possible Cause / Solution
NOTIFICATION ISSUES	
How do I set up e-mail notifications.	A second network interface connected to a separate network is required for e-mail notifications or using remote desktop-type software to control the RHAON computer. You will need to contact the network administrator at the installation for details on connecting to their Simple Mail Transport Protocol (SMTP) server, also known simply as "the outgoing e-mail server."
While attempting to send e-mails I receive the following Error Message "The specified string is not in the form required for an e-mail address."	What you enter in the "Name of Installation:" field is used as part of a spoofed "From:" field in the notification e-mail. Use of non US-ASCII characters in an e-mail address is invalid. For example, use of Greek letters, symbols not on a US keyboard, or the '@' symbol are not allowed. For more information, please visit: http://en.wikipedia.org/wiki/e-mail_address .
I need to change the sample rate of my Array from 48 kHz to 96 kHz. How do I do this?	You need to install new 96 kHz DSP firmware (.Bin files) in your array. Open RHAON, Scan Network, right click on the array's listing in the directory tree and select Update DSP Firmware from the pop up menu. When the Update DSP Firmware screen opens, select the newest 96 kHz .bin file and press Download. Refer to the array's users manual for more detailed instructions on making this change.
I updated the firmware in the array I use for demos and now it doesn't work. What went wrong and how do I fix it?	Chances are that you installed the DSP Firmware .Bin files before installing the Microcontroller Firmware Hex files. The .Hex files need to be installed first. Re-installing the .Bin files should solve the problem.
I updated the firmware in my IC24-R array and now it is acting weird. What could have gone wrong?	Chances are that you updated the firmware only in the Master Module and did not update the slave modules. When the firmware is being updated in a multi-module array like the IC24-R, the firmware must be individually updated in all modules. Refer to the IC-R users manual for details.
I'm trying to update the firmware in one of my Iconyx installations, but I keep getting error messages while trying to download the .Hex files.	This sounds like a network problem. Use the Network Manager to check for network problems. Refer back to page 12 for troubleshooting tips. If possible, disconnect the array from its network connections and connect your laptop directly to the array.



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