

**SOUNDCRAFT**

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# Si Series Option Slot & Card User Guide

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## Version:

- V1.1 Added AES.
- V1.2 Added Aviom® & CobraNet™.
- V1.2.1 For initial release.
- V1.3.0 Added extra CN info and Installation of hot plugging.

## Supported Cards:

MADI, AES, CobraNet™, AVIOM®

## Card Installation and Removal:

The option card connectors are located behind blank panels on the rear of the console, use a hex key or Posidrive™ screwdriver to release the cover and retain this for future use.

When installing or removing a card ensure to observe the following:

- Do not over-tighten card retaining screws.
- Observe best practice regarding ESD (electrostatic discharge) before inserting or removing any option card.
- Ensure the console is switched off and all AC power cords are removed before installing or removing any option card.
- Do not use force; if the card does not locate and plug-in easily contact your distributor or Soundcraft Customer Service in the UK.

**FAILURE TO OBSERVE TRHESE PRECAUTIONS MAY RESULT IN DAMAGE TO THE CONSOLE AND / OR THE OPTION CARD.**

## Introduction:

The Si series of consoles feature a versatile 128 channel expansion bus offering 64 discrete additional input sources and 64 additional output patches that may be used in parallel to fan-out to multiple destinations. Routing *from the cards to the processing channels* and *from channels or buses to the option card buses* is achieved via the 'Patching' functionality; see Si User Guide for details.

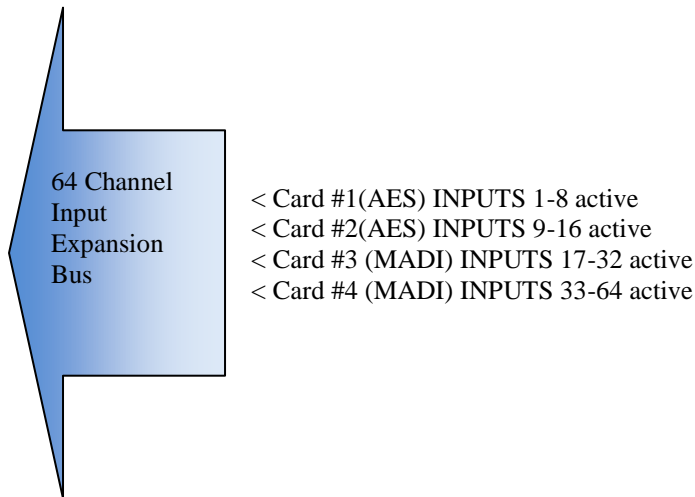
## Theory of Operation:

**Inputs** – All of the 64 expansion bus inputs are present at all expansion slot positions; any *card* may route to any expansion bus however only *one* card may be set to route to any one bus at any one time, as an example if you require 64 inputs from a MADI card then no routing from other input cards may be active at the same time; see 'DIP SWITCH SETTINGS' for your option cards for details on how to activate / de-activate routing to the expansion bus.

**NOTE:** There is a clear distinction between patching & routing; **patching** is the act of assigning an available signal source to a processing channel whilst **routing** is the action of enabling / disabling outputs of an option card to the expansion bus for where it may then be patched to a DSP channel.

## Example Configurations:

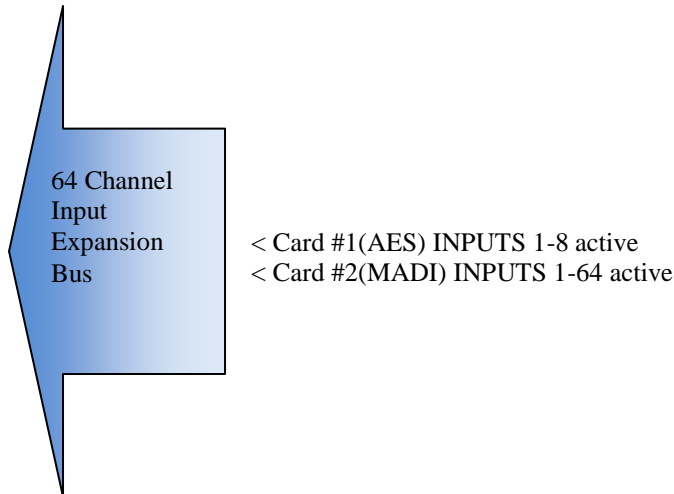
An example of a **valid** configuration:



This configuration uses all four slots found in an Si3 / Si2 but no two cards are trying to route to the same bus.

**NOTE:** Si1 has only two option slots but the same principles apply.

An example of an *invalid* configuration:

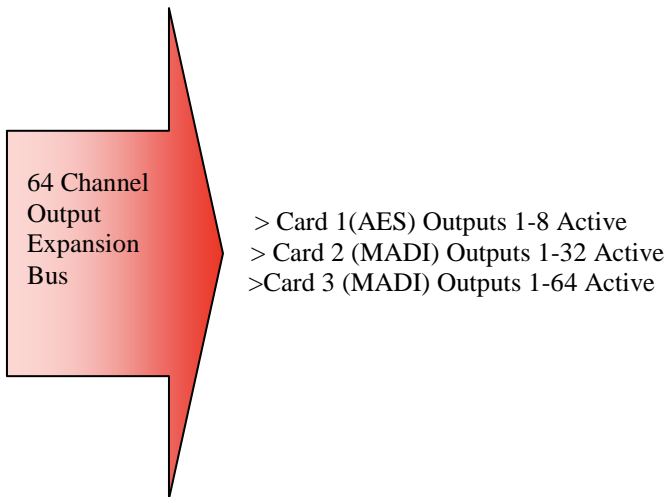


In this example there is a clash between the two cards as both are trying to ‘route’ to buses 1-8 and the conflict must be resolved by resetting of the routing dip switches on one or other of the cards.

**Outputs** – The operation of the outputs is slightly different; whilst it is the case that only one audio source in the console may feed any given output or expansion bus any *or all* of the cards may ‘listen’ to what has been patched to the expansion bus. This topology allows great versatility when you are required as an example to direct outputs to multiple destinations simultaneously.

The DIP switches on the option cards may still be used to limit or choose which signals the card uses in the event you do not wish all cards to re-transmit all channels.

A typical example of an output configuration:



## Card Switch Settings:

Each Si option card features 8 DIP switches arranged as two groups of four, these enable or disable inputs to or outputs from the option card and expansion bus. The table below illustrates the function of the DIP switches found on the Si Series option cards:

Switch name	CH 8	CH 16	CH 32		CH 64			
	Desk DIO							
	1 to 8	9 to 16	17 to 24	25 to 32	33 to 40	41 to 48	49 to 56	57 to 64
8 channel option card	1 to 8	1 to 8	1 to 8	Unavailable	1 to 8	Unavailable	Unavailable	Unavailable
16 channel option card	1 to 8	9 to 16	1 to 8	9 to 16	1 to 8	9 to 16	Unavailable	Unavailable
24 channel option card	1 to 8	9 to 16	17 to 24	Unavailable	1 to 8	9 to 16	17 to 24	Unavailable
32 channel option card	1 to 8	9 to 16	17 to 24	25 to 32	1 to 8	9 to 16	17 to 24	25 to 32
64 channel option card	1 to 8	9 to 16	17 to 24	25 to 32	33 to 40	41 to 48	49 to 56	57 to 64

Setting any given input switch shall enable routing of the INPUTS **TO** THE OPTION CARD to the given channels on the expansion bus.

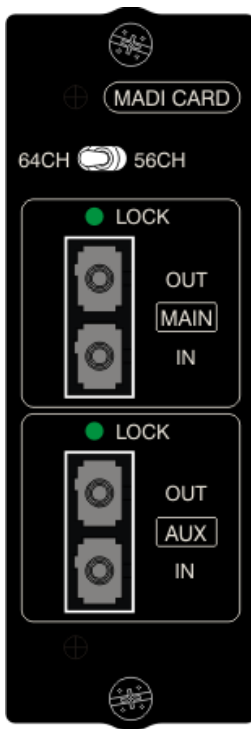
Setting any given output switch shall enable routing of the SIGNALS ON THE EXPANSION BUS (outputs from the console) **TO** THE OPTION CARD.

It is important to remember that the *patching* of I/O signals to / from the expansion bus is unrelated to the setting of the physical switches on option cards; the card switches dictate only which channels of the option card bus the expansion card can monitor / route to.

**NOTE:** There are some exceptions to the above, please refer to the Switch Settings section of each card type for full details.

## Si Series Optical MADI Card

The MADI I/O card can establish a 64-channel MADI input and output to a remote device such as stage box or other equipped device. Optical inputs and outputs are provided on SC connectors available in multi-mode versions only. The auxiliary interface can be used as a redundant link.



### Specifications

Max. cable length multi-mode fibre 1300 nm 2 km

Input frequencies 48 kHz  $\pm$ 100 ppm

Current consumption (3.3 V) 0.4A

(5 V) 0.4A

Operating temperature 0...45° C

### Switch Settings:

#### Input Switches Settings:

CH IN 1-8 – MADI channels 1-8 feed expansion bus inputs 1-8

CH IN 9-16 – MADI channels 9-16 feed expansion bus inputs 9-16

CH IN 17-32 – MADI channels 17-32 feed expansion bus inputs 17-32

CH IN 33-64 – MADI channels 33-64 feed expansion bus inputs 33-64

#### Output Switches Settings:

The switches have no function; all expansion bus outputs feed MADI channels 1-64

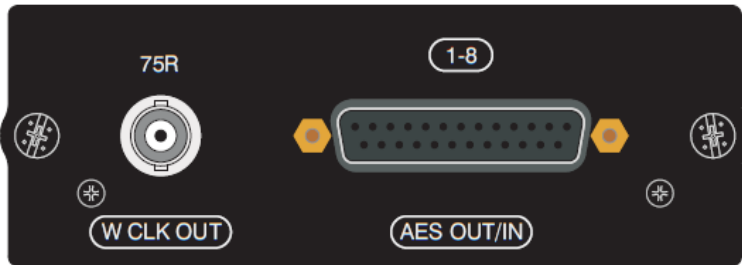
## Si Series AES Cards

The AES I/O cards offer standard AES inputs and outputs conforming to the AES 3 specification. The card is available in two versions either 4ch IN and 4ch OUT on XLR connectors or 8ch IN and 8ch OUT on a 25w SUB-D female connector.

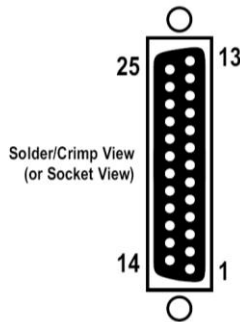


### Specifications

Input/output impedance 110 Ω  
 Input sensitivity min. 0.2 V  
 Output level (into 110 Ω) 3.3 V  
 SFC range 22...108 kHz  
 Operating temperature 0...45° C



### Pin Configurations - SUB-D Connector



Pin	Signal "CH 1...8"	Pin	Signal "CH 1...8"
1	CH 7/8 out +	14	CH 7/8 out -
2	CH 7/8 out screen	15	CH 5/6 out +
3	CH 5/6 out -	16	CH 5/6 out screen
4	CH 3/4 out +	17	CH 3/4 out -
5	CH 3/4 out screen	18	CH 1/2 out +
6	CH 1/2 out -	19	CH 1/2 out screen
7	CH 7/8 in +	20	CH 7/8 in -
8	CH 7/8 in screen	21	CH 5/6 in +
9	CH 5/6 in -	22	CH 5/6 in screen
10	CH 3/4 in +	23	CH 3/4 in -
11	CH 3/4 in screen	24	CH 1/2 in +
12	CH 1/2 in -	25	CH 1/2 in screen
13	n.c.		

### Pin Configurations - XLR Connectors:

PIN#1 GND  
 PIN#2 HOT  
 PIN#3 COLD

### Input Switch Settings:

CH IN 1-8 – AES channels 1-8 [1-4] feed expansion bus inputs 1-8 [1-4]  
 CH IN 9-16 – AES channels 1-8 [1-4] feed expansion bus inputs 9-16 [9-12]  
 CH IN 17-32 – AES channels 1-8 [1-4] feed expansion bus inputs 17-24 [17-20]  
 CH IN 33-64 – AES channels 1-8 [1-4] feed expansion bus inputs 33-40 [33-36]

### Output Switches Settings:

CH OUT 8 – Expansion bus outputs 1-8 feed AES outputs 1-8 [1-4]  
 CH OUT 9-16 – Expansion bus outputs 9-16 feed AES outputs 1-8 [1-4]  
 CH OUT 17-32 – Expansion bus outputs 17-24 feed AES outputs 1-8 [1-4]  
 CH OUT 33-64 – Expansion bus outputs 33-40 feed AES outputs 1-8 [1-4]

**NOTE:** Numbers in [Square Brackets] relate to the XLR version of the card

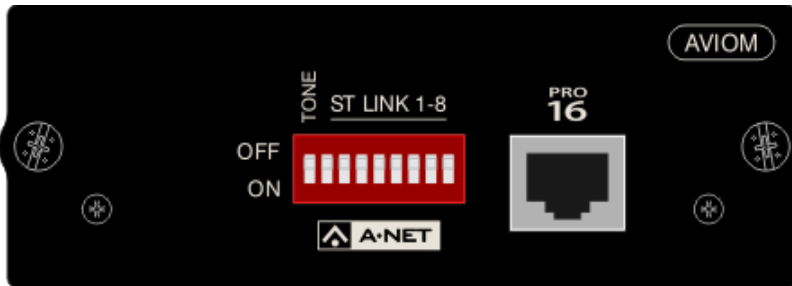
**NOTE:** Although an AES card may have fewer channels than the expansion bus group enabling the switch occupies all the channels within the expansion bus group to which it is enabled e.g. if enabling group 17-32 there will be no audio on expansion bus channels 25-32 [21-32].

## Si AVIOM® Card

This card allows implementing the head of an AVIOM® A-Net Pro-16 chain, with this standard, 16 mono signals can be fed to an infinite number of AVIOM® personal mixers (such as the A-16 II) may be connected in a daisy chain configuration; The Si A-Net card will be the start of the chain and provide the audio and synchronization data to the chain.

DIP switches on the front panel allow grouping two adjacent channels to one stereo channel and generating a test tone. This card works at sampling frequencies of 44.1 or 48 kHz only.

For more information on AVIOM® visit their web site <http://www.aviom.com/>



### Input Switch Settings:

- CH IN 1-8 – No function, set to ‘OFF’
- CH IN 9-16 – No function, set to ‘OFF’
- CH IN 17-32 – No function, set to ‘OFF’
- CH IN 33-64 – No function, set to ‘OFF’

### Output Switch Settings:

- CH OUT 8 – Expansion bus outputs 1-8 feed AVIOM® outputs 1-8
- CH OUT 9-16 – Expansion bus outputs 9-16 feed AVIOM® outputs 9-16
- CH OUT 17-32 – Expansion bus outputs 17-24 feed AVIOM® outputs 1-16
- CH OUT 33-64 – Expansion bus outputs 33-40 feed AVIOM® outputs 1-16

### Specifications

Operating temperature 0...40° C

## Si CobraNet™ Card

This card allows sending and receiving of up to 32 audio channels to/from a CobraNet™ network. DIP switches on the card allow setting the number of input or output channels seen by the console. Default setting is 32 output and 32 input channels. By default, the module is configured to be the conductor (synchronization master) and providing multicast bundles 1...4 to the CobraNet™ network. This setting is ideal for e.g. providing audio channels to a PA, installed sound, or monitoring system using CobraNet™

For further information on CobraNet™ please visit their web site <http://www.CobraNet.info>



### Input Switch Settings:

CH IN 1-8 – CobraNet™ channels 1-8 feed expansion bus inputs 1-8

CH IN 9-16 – CobraNet™ channels 9-16 feed expansion bus inputs 9-16

CH IN 17-32 – CobraNet™ channels 1-16 feed expansion bus inputs 17-32

CH IN 33-64 – CobraNet™ channels 1-32 feed expansion bus inputs 33-48

### Output Switch Settings:

CH OUT 8 – Expansion bus outputs 1-8 feed CobraNet™ outputs 1-8

CH OUT 9-16 – Expansion bus outputs 9-16 feed CobraNet™ outputs 9-16

CH OUT 17-32 – Expansion bus outputs 17-24 feed CobraNet™ outputs 1-16

CH OUT 33-64 – Expansion bus outputs 33-40 feed CobraNet™ outputs 1-32

### Specifications

Operating temperature 0...40° C



## Si-Series CobraNet™ Card Setup Guide

This guide describes typical setup of a laptop or PC and running of the CobraNet™ Discovery® utility, to configure the settings of the Si series CobraNet™ card.

NOTE: The exact configuration and screen shots will be dictated by your network setup, laptop / PC setup and/or other devices connected to the network therefore it is not possible to give exact details for individual parameters, but this guide shows how to access and edit those parameters.

It is recommended that setting up a CobraNet™ network is carried out by an experienced person, but if more information is required, useful documents can be downloaded from the CobraNet™ website, on <http://CobraNet.info>

### Tested Configuration:

Si Compact V1.1.5

CobraNet™ Module CM1 2.21.0 rev 4

CobraNet™ Discovery V4.0.3

### Installing CobraNet™ Discovery software to allow configuration of Si-Series CobraNet™ card.

CobraNet™ Discovery® is a free utility provided by the manufacturers of CobraNet™ hardware, Cirrus Logic. Version of the program V4.0.2 or above allow not only the monitoring of CobraNet™ device parameters, but also the configuration of settings such as bundle numbers, latency and bit depth.

The program can be downloaded from the website <http://www.CobraNet.info> – follow the Downloads link on this page. If you have an older version of CobraNet™ Discovery remove this and install the latest version.

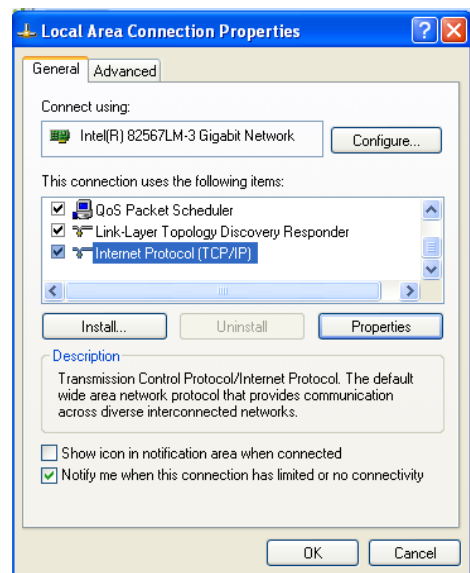
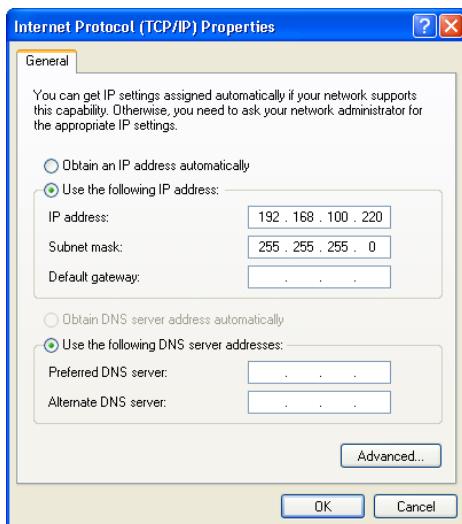
### Setting up the Ethernet port on the Laptop / PC.

The Laptop / PC needs to have its network port configured to have a fixed IP address in order to communicate with the CobraNet™ card:

1. On the Laptop / PC:

- **Start > Control Panel > Network Connections.**
- **Right-click** the network connection you are going to use.
- Select **Properties.**

2. From the **General** tab select **Internet Protocol (TCP/IP)** and click on **Properties**

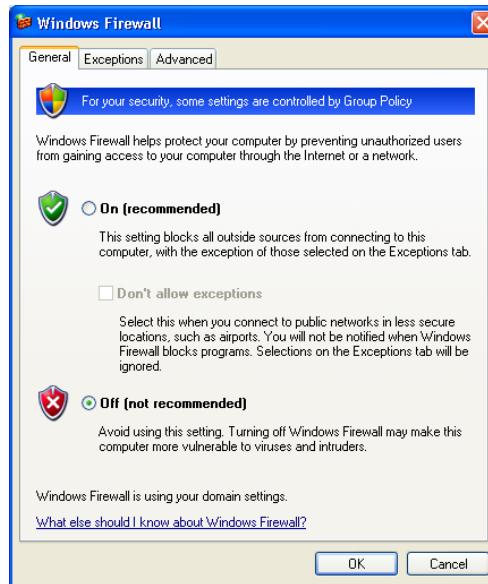
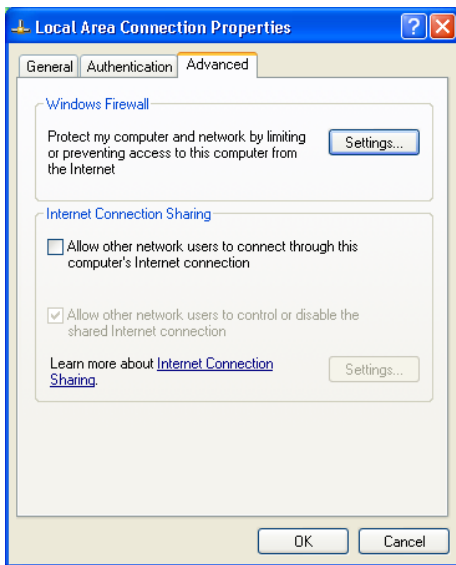


3. Select **Use the following IP address** and type in the IP address and subnet mask as shown.

If you are only connecting to the Si CobraNet™ card it does not really matter what the actual IP address is, but it is recommended to set it as above.

Click **OK** to close the TCP/IP dialogue box.

4. In the **Local Area Connection** box, select the **Advanced** tab at the top, and then click the **Windows Firewall Settings** button:



Make sure the firewall is set to **Off**.

Click **OK** on all dialogues to exit the Local Area Connection properties.

**Note:** You may have to reverse the above settings 1-4 if you subsequently need to connect the laptop to a business LAN, so it is best to use a separate network port if available.

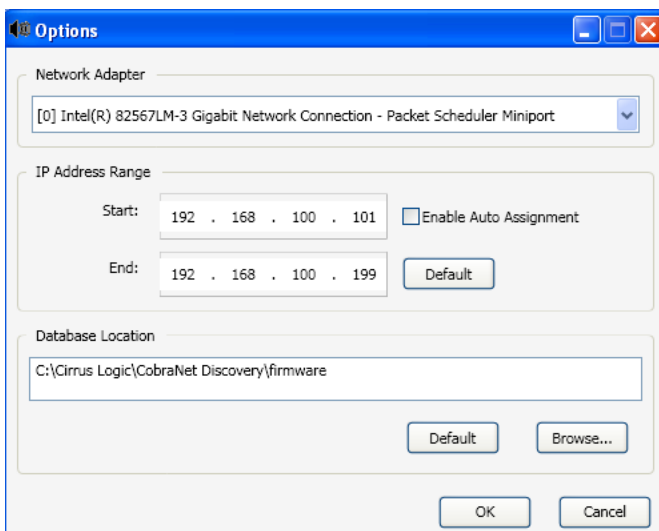
### Setting up CobraNet™ Discovery to configure the Si series CobraNet™ card

1. Start the Si console and connect the laptop or PC Ethernet port to the Primary port on the CobraNet™ card; this should be done with a crossover Ethernet cable. Both LEDs on the CobraNet™ card should start flashing when correctly connected to the laptop or PC.

**Note:** Depending on the laptop, a 'straight' cable may be used, if the laptop supports both cable types or use a switch between the laptop / PC and CobraNet™ card. Using a switch enables other CobraNet™ devices to be connected at the same time and their configuration inspected and changed if necessary to match the Si (Note: do not change a BSS London's CobraNet™ parameters using CobraNet™ Discovery).

2. Start the CobraNet™ Discovery program and select **Tools>Options**.

In the **Network Adaptor** dialogue, select the network controller that your laptop or PC is using for connection to the CobraNet™ card.

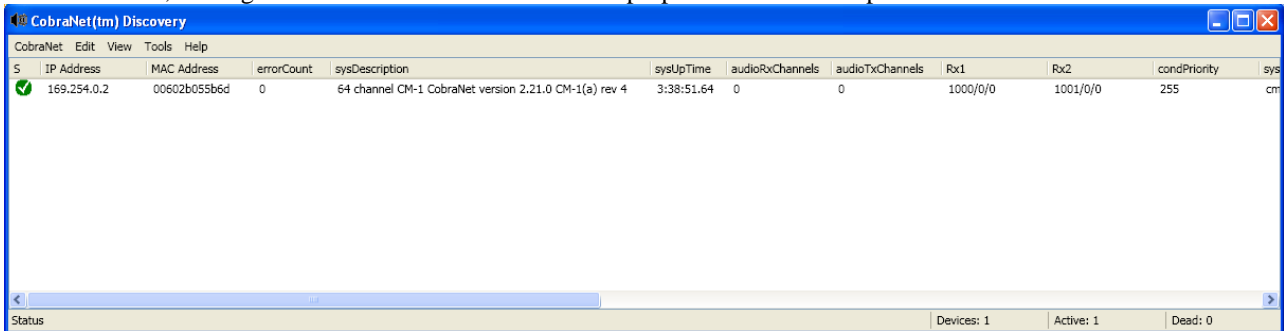


In the **IP Address** range fields enter values as above, and then check the 'Enable Auto Assignment box'. Click **OK** to return to the main Discovery window.

**Note:** this procedure is normally only required the first time you connect to the Si card.

3. The CobraNet™ Discovery should now see the Si CobraNet™ module in the Discovery window, with a green ‘tick’ icon on the left and an IP address similar to that shown:

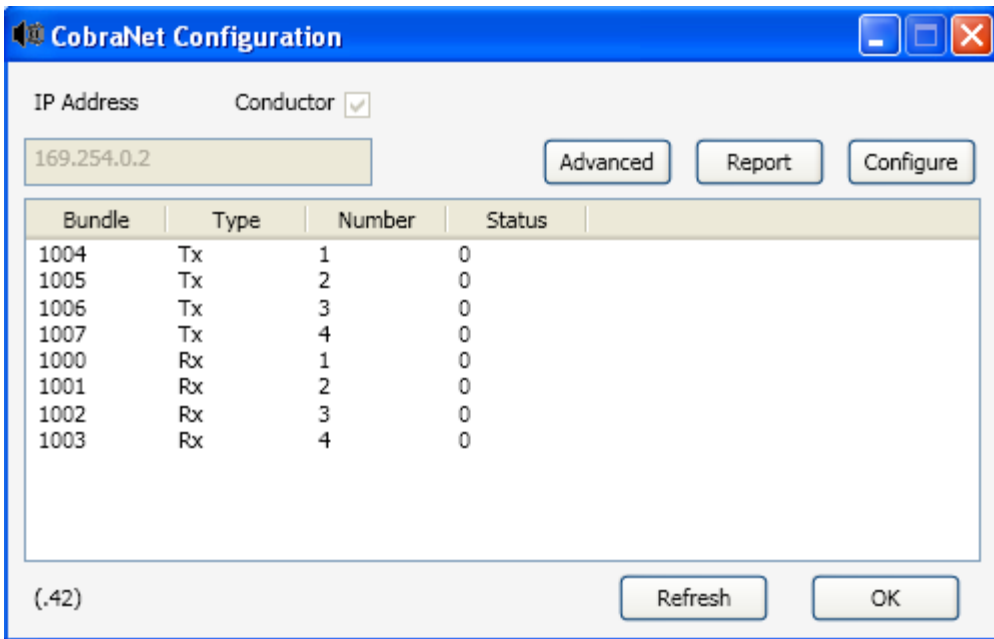
The IP address is only used for the purposes of connecting to the configuration computer, so what the actual address is does not matter, as long as it is in the same subnet as the laptop or PC’s Ethernet port.



4. To configure the CobraNet™ card right-click on the Si CobraNet™ device to select it, then choose **Tools>Configure**.

The Configuration box appears, showing the current bundle number setup.

You will need to change the bundle configuration of either the Si card or the external equipment so as the transmit number of one matches the receive number of the other, in order to pass audio.



5. The bundle numbers can now be changed as required by either directly editing the bundle number fields, or selecting one of the four transmit or receive bundles and clicking the 'Configure' button, which opens a more detailed Configuration dialogue box:

**IMPORTANT**

The Si CobraNet™ card is set from the factory to have 4 transmit bundles (32 channels) and 4 receive bundles active.

The number of transmit and receive channels is also set on the CobraNet(tm) card PCB via DIP switches. These switches determine how many channels are available in the Si6 Input and Output patching touch screens,

If the number of transmit and/or receive channels is changed from the default, the DIP switches on the CobraNet™ card should also be changed to match.

The **SubFormat** parameter allows the bit depth to be changed to match the network but if changed to 24 bits, it is not possible to use all 8 channels in the bundle.

6. Changing the Latency, sample rate and card name

The Advanced Configuration dialogue box is used to set the Latency and Sample rate of the Si CobraNet™ card (this is the parameter called **modeRate Control**)

These **must** match the other devices in the network, otherwise the system will not work.

**Note:** With latency setting of 1.33ms, only 7 channels per bundle are allowed.

**IMPORTANT**

The Conductor Priority parameter must be left at / set to a value of 255. This is the highest priority and indicates that the Si console will always be the clock master for the entire network.

If necessary, the Name, Location and Contact fields can be changed to identify the console in more detail.

Do not change any other fields!

In particular, the 'Persistence' box must not be unchecked, otherwise all setup data will be erased.

For more information on CobraNet™ parameters, see the website [www.CobraNet\(tm\).info](http://www.CobraNet(tm).info)