Clear-Com
AN HME COMPANY

VoICE2 IP Interface and SOFT-VoICE

Version 2.1.0

User Manual

Document Reference

VoICE2 IP Interface and SOFT-VoICE User Manual

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IMPORTANT SAFETY INSTRUCTIONS

1 Read these instructions.

2 Keep these instructions.

3 Heed these instructions.

4 Follow all instructions.

5 Do **not** use this apparatus near water.

6 Clean only with a dry cloth.

7 Do **not** block any ventilation openings. Install in accordance with the manufacturer's instructions.

8 Do **not** install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.

9 Do **not** defeat the purpose the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10 Protect the power cords from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11 Only use attachments / accessories specified by the manufacturer.

12 Use only with the cart, stand, tripod, bracket or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart / apparatus combination to avoid injury from tip-over.

13 Unplug the apparatus during lightening storms or when unused for long periods of time.

14 Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

LITHIUM BATTERY

CAUTION:

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type.

SAFETY SYMBOLS

Familiarize yourself with the safety symbols in **Figure 1: Safety symbols**. These symbols are displayed on the IP Interface apparatus, warn you of the potential danger of electric shock if the system is used improperly and refer you to important operating and maintenance instructions in the product user manual**.**

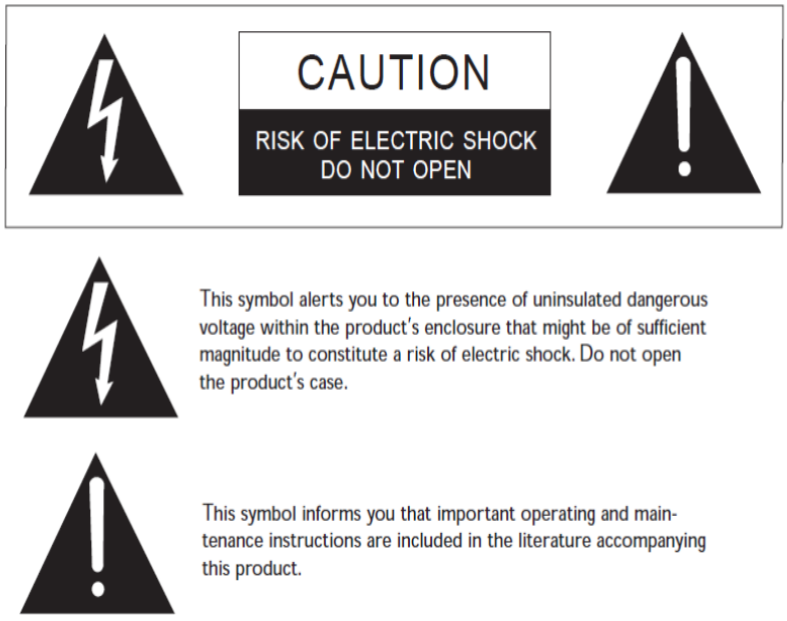


Figure 1: Safety Symbols

COMPLIANCE NOTICES (EMC AND SAFETY)

The IP Interface system meets all relevant CE, FCC, UL, and CSA specifications set out below:

EN55022: 1998 + A1 + A2 Electromagnetic compatibility: Information technology equipment - Radio disturbance characteristics

EN55024: 1998 + A1 + A2 Electromagnetic compatibility: Information technology equipment - Immunity characteristics

UL 60950-1 2nd Edition

CSA C22.2 No. 60950-1 2nd Edition

IEC 60950-1, 2nd Edition

And thereby compliance with the requirement of **Electromagnetic Compatibility Directive 89/336/EEC** and **Low Voltage Directive 73/23/EEC** as amended by **93/68/EEC.**

This device complies with **Part 15** of the **FCC Rules.** Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

1 INTRODUCTION

VOICE 2.1.0 INTERFACE FOR ECLIPSE AND OTHER MATRIX SYSTEMS

The 1 RU 4 way interface provides users with a simple and low cost solution to extending intelligent intercom facilities to remote sites over IP infrastructure.

Each VoICE 2.1.0 interface operates back to back with others, in a Server and Client configuration to provides these connectivity opportunities:

- Up to four remote user panels intelligently linked backed to the matrix with all the functionality of a locally connected panel.
- Up to four intelligent trunk lines between remote matrix systems which provides efficient and automatically managed routing between remote systems.

A system consists of at least two VoICE units which operate as a pair. One must be designated as Client and the second as a Server.

- Up to four 4-wire Audio pairs and four Asynchronous RS-422 data links between remote sites.
- Up to four Remote PC based SOFT-VoICE Virtual Intercom panels to matrix ports.
- Supports a subset of “Bonjour” service discovery protocol, providing compatibility with suitable client software on Windows and Mac OSX systems.

The interface uses state of the art audio CODECs to provide low latency audio digitisation in a user selectable compression format from linear to 15KHz (-3dB) bandwidth.

Latest Echo Cancelling technology enables the use of a gooseneck mic and loudspeaker operation as well as headset by digitally reducing acoustic echoes.

The IP processing engine uses the very latest in AES 128 bit compression technology to provide high priority tunnelling without compromising network security.

Each frame comes with web client application that provides for both IP line and CODEC setup and diagnostics that can be monitored from a centralised remote maintenance position.

SOFT-VOICE FOR PC

SOFT-VoICE is a software package that can be installed on a suitable PC to allow it to be connected to an audio communications system over an ethernet connection.

The SOFT-VoICE package is also described in this manual.

SOFT-VOICE PC REQUIREMENTS

The minimum recommended PC requirements to run SOFT-VoICE are:

- Pentium IV 2.4GHz or Athlon 2400+
- 256 Mb RAM
- 25Mb hard disk space
- Windows 2000 or Windows XP
- Audio Card
- Headset Connector or USB port
- CD-ROM Drive
- Ethernet Port
- Color Monitor

***SOFT-VoICE supports multiple instals on the same PC using different audio sound cards.**

BONJOUR COMPATIBILITY

The Bonjour software provided in release 2.1.0 of VoICE firmware requires a suitable client on the configuration PC. Mac OSX includes a Bonjour client as standard but Windows requires additional software.

Zeroconf explorer is available free for Windows 2000 and XP from www.stg.com/zeroconf_explorer.html. Once installed it will locate any 2.1.0 VoICE units on the local network.

A Bonjour package for Windows XP and Vista is also available from www.apple.com.

The VoICE 2.1.0 software will automatically give each unit a host name derived from the MAC address. The host name takes the form voice-xxxx-xxxx-xxxx where the xxxx-xxxx-xxxx portion is the unit MAC address.

The Bonjour client will display the host names rather than IP addresses and allow the PC to connect to the unit using this host name rather than the IP address (see Figure 1-1).

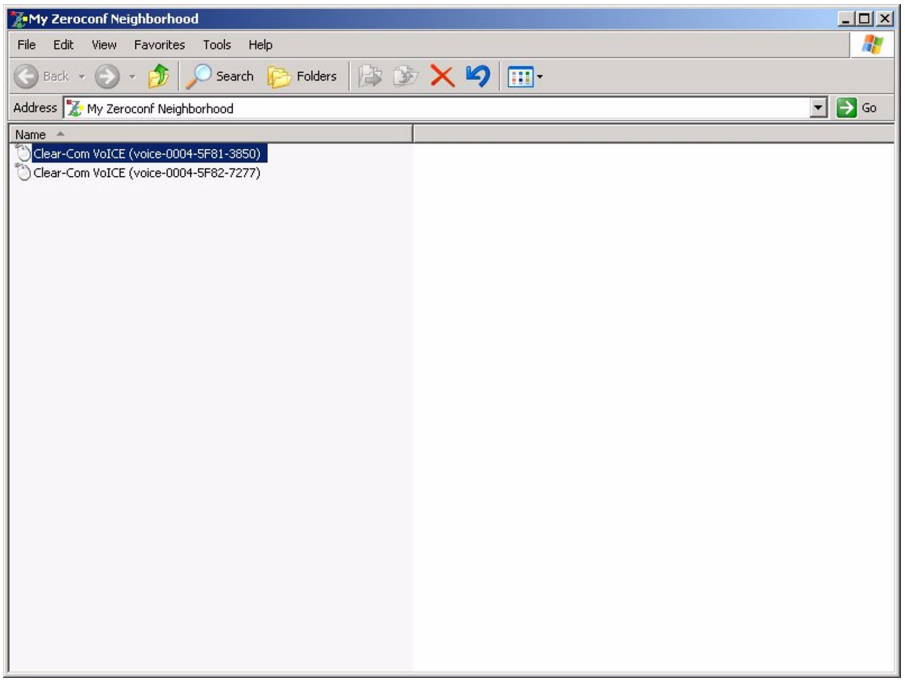


Figure 1-1: Zeroconf Explorer Display

Double click on the link shown in the Zeroconf neighborhood to open a web browser using the appropriate IP address.

If the VoICE unit is not on the same subnet as the PC then it may not be possible for the PC to reach it. In this case the IP address of the unit will be displayed in the address bar of the Zeroconf neighborhood browser. Change the PC address to reach the unit or use the LAN 2 connection as described in this manual.

2 OPERATION

GETTING STARTED

This chapter covers getting started with the VoICE2 IP-Interface product for the very first time. More detailed information on the installtion and configuration of VoICE2 IP Interface is given in the chapter on installation.

Readers should have basic PC knowledge and some knowledge of the application in which they wish to use the unit.

This section describes:

i. Configuring the PC's web browser
ii. First time configuration of the units
iii. Setting characteristics
iv. Connecting to the LAN and Matrix or Panel

What you should have received

1. A CD containing this manual and system software.
2. A pair of VoICE2 units each comprising:
   - A 1 RU 19" rack mount unit

Figure 2-1: Unit

   - Power cord

Note: You may only have one unit if you are connecting to an existing unit or virtual PC intercom panels (SOFT-VoICE).

This section describes the installation and setup of the IP Interface product, including cable connections and configuration. The following subjects are covered in this section:

- Description
- Installation in a rack
- Wiring
- Setup

WHAT YOU NEED TO GET

1. A PC with a web browser (e.g. Internet Explorer or Mozilla Firefox) and optionally the Bonjour client. Further information on obtaining Bonjour client software is given in the PC configuration section.
2. 3 x Straight Ethernet patch cords (UTP Cat5 or better) – the type of cable you would use to connect a computer to a hub (NOT a crossover cable that you would use to connect a computer to a computer or a hub to a hub).

Figure 2-2: CAT5 Cable

One for each of:

- Client
- Server (this will look he same as the Client)
- PC

3. An Ethernet Hub (or Switch).
   This may be part of your corporate network later, but during initial setup it may be easier to work with the unit isolated.

What you need from your Network Administrator

1. One IP Address per VoICE unit.
   The VoICE units require a fixed IP address. Please contact your network administrator in order to obtain an IP address for your VoICE unit(s).
2. Subnet masks for each VoICE unit.
3. Default Gateway settings for each VoICE unit.
4. DNS server entries for each VoICE unit (optional – if, later in the configuration, you would prefer to use a name instead of IP address to refer to the server from the client then a DNS entry is required).

The tables below can be used to record the server and client settings to be used to configure the VoICE units.

Table 2-1: VoICE Server IP Settings

Server Address		**.**		**.**		**.**	
A	**A1**		**A2**		**A2**		**A4**
Subnet Mask		**.**		**.**		**.**	
B	**B1**		**B2**		**B3**		**B4**
Default Gateway		**.**		**.**		**.**	
C	**C1**		**C2**		**C3**		**C4**
DNS Server		**.**		**.**		**.**	
D	**D1**		**D2**		**D3**		**D4**

Table 2-2: VoICE Client IP Settings

Client Address		**.**		**.**		**.**	
A	**A1**		**A2**		**A2**		**A4**
Subnet Mask		**.**		**.**		**.**	
B	**B1**		**B2**		**B3**		**B4**
Default Gateway		**.**		**.**		**.**	
C	**C1**		**C2**		**C3**		**C4**
DNS Server		**.**		**.**		**.**	
D	**D1**		**D2**		**D3**		**D4**

Note

Factory default address is 172.16.86.100. Factory set default server address is 172.16.86.101. Factory set default Client address is 172.16.86.102.

Table 2-3: VoICE Client IP Settings

Client Address		**.**		**.**		**.**	
A	**A1**		**A2**		**A2**		**A4**
Subnet Mask		**.**		**.**		**.**	
B	**B1**		**B2**		**B3**		**B4**
Default Gateway		**.**		**.**		**.**	
C	**C1**		**C2**		**C3**		**C4**
DNS Server		**.**		**.**		**.**	
D	**D1**		**D2**		**D3**		**D4**

Table 2-4: VoICE Client IP Settings

Client Address		**.**		**.**		**.**	
A	**A1**		**A2**		**A2**		**A4**
Subnet Mask		**.**		**.**		**.**	
B	**B1**		**B2**		**B3**		**B4**
Default Gateway		**.**		**.**		**.**	
C	**C1**		**C2**		**C3**		**C4**
DNS Server		**.**		**.**		**.**	
D	**D1**		**D2**		**D3**		**D4**

Table 2-5: VoICE Client IP Settings

Client Address		**.**		**.**		**.**	
A	**A1**		**A2**		**A2**		**A4**
Subnet Mask		**.**		**.**		**.**	
B	**B1**		**B2**		**B3**		**B4**
Default Gateway		**.**		**.**		**.**	
C	**C1**		**C2**		**C3**		**C4**
DNS Server		**.**		**.**		**.**	
D	**D1**		**D2**		**D3**		**D4**

On delivery the network address of the unit may be the default IP address of 172.16.86.100 or it may have been factory set to 172.16.86.101 for a server and 172.16.86.102 for a client.

CONFIGURE THE PC READY FOR INITIAL SETUP

The default IP address enables the PC to talk to the VoICE units so that the web browser can be used to configure the VoICE unit.

Background

A VoICE unit and its associated configuration PC must reside on the same IP subnet.

The VoICE unit LAN 1 port is adjustable to match your network.

The VoICE unit LAN 2 port has a fixed IP address of 10.0.0.1.

Temporarily configuring your PC to operate on the 10.0.0.XX subnet will allow you to configure the VoICE unit via the LAN 2 port.

Once this is complete, the first configuration change will be to modify the VoICE unit LAN 1 IP address to match your network.

Changing the IP address of the PC

You will require administrator access to the configuration PC in order to change the PC IP Address to enable access to the VoICE unit for the first time.

Note: After correctly configuring the VoICE unit for your network the IP Address of the PC can be returned to it's original state.

If in doubt contact your network administrator.

CHANGING THE IP ADDRESS OF THE PC IN WINDOWS 2000

1. Disconnect your PC from any Ethernet network it may be connected to.
2. From the ***Start*** menu choose ***Settings*** and then click on ***Network Connections***.

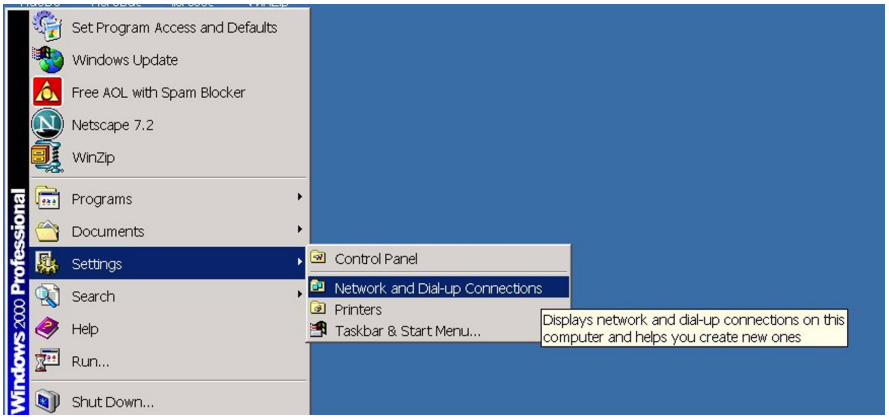


Figure 2-3: Start Menu

3. You should now see the ***Network Connections*** window:

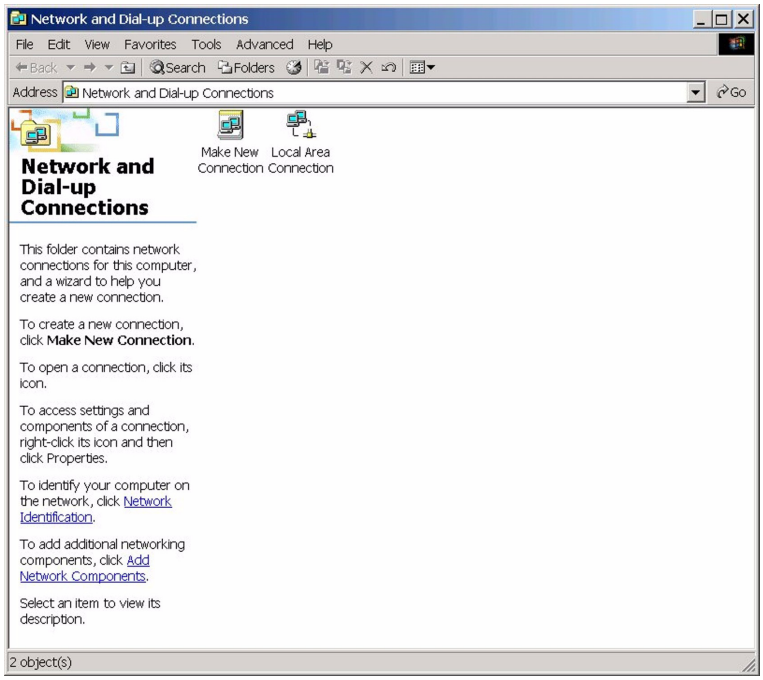


Figure 2-4: Network Connections Window

4. Double-click the ***Local Area Connection*** icon.
5. You should now see the ***Local Area Connection Status*** window.

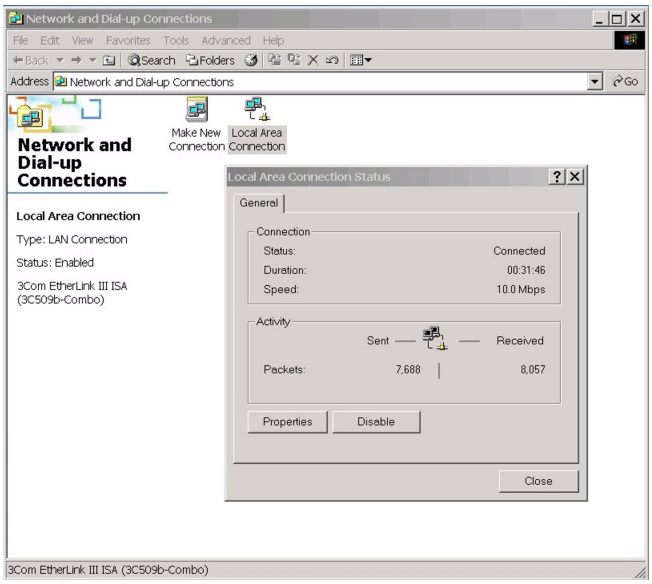


Figure 2-5: Local Area Connection Status Window

6. Click on the ***Properties*** button.
7. You should now see the ***Local Area Connection Properties*** window:

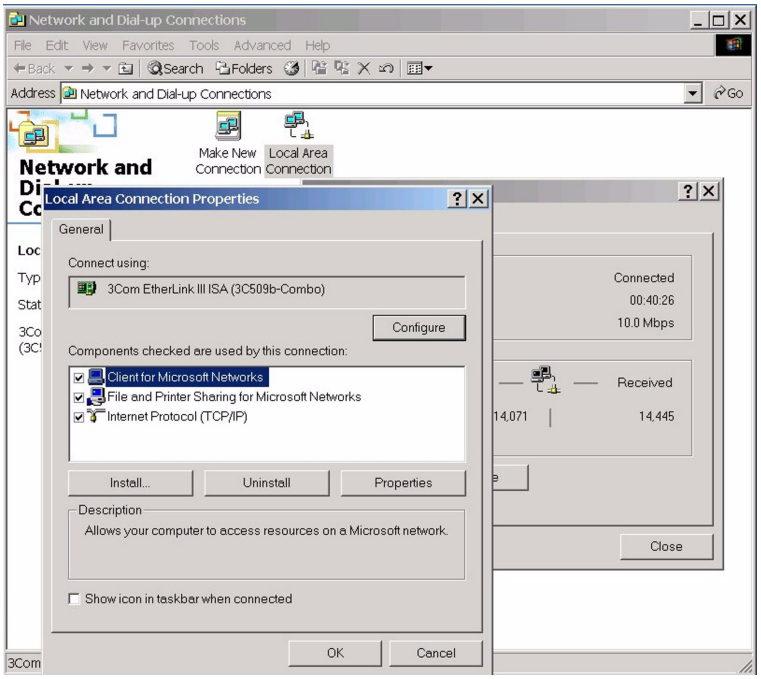


Figure 2-6: Properties Window

8. Select the entry ***Internet Protocol TCP/IP***. Note that you may have to scroll down through the list using the scroll-bars on the right.

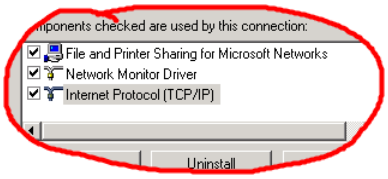


Figure 2-7: Protocol Select

9. Then Click on the ***Properties*** button.
10. You should then see the ***Internet Protocol TCP/IP Properties*** window:

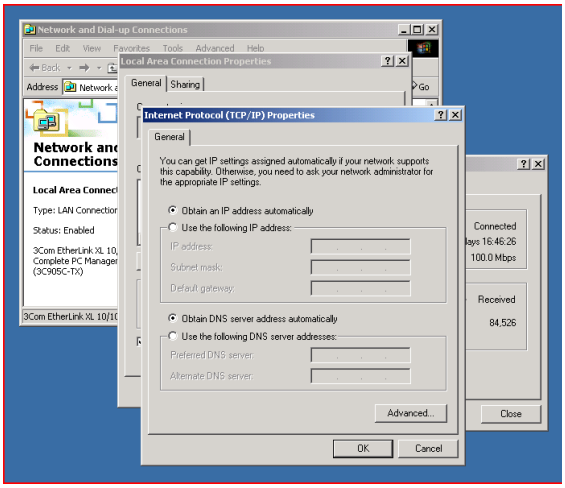


Figure 2-8: TCP/IP Properties

11. At this point it would be a good idea to record any of the settings that you currently have in the ***Internet Protocol TCP/IP Settings*** including anything that is in the ***advanced*** configuration.
12. Make sure that ***Use the following IP address*** is selected (not ***Obtain an IP Address automatically***).

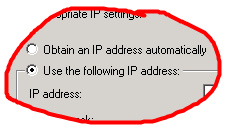


Figure 2-9: IP Address Selection

13. Change the IP Address to 10.0.0.2 and the subnet mask to 255.0.0.0 (and leave ***Default gateway*** blank):

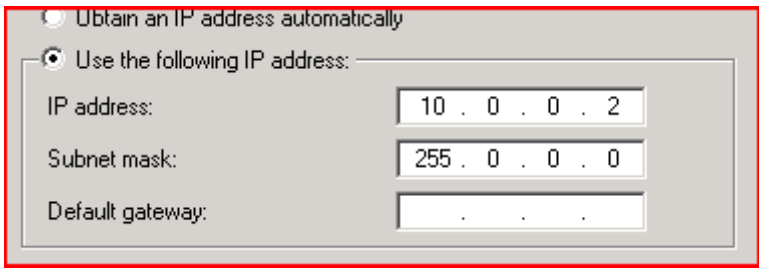


Figure 2-10: Default Gateway

14. Make sure that all of the ***DNS*** entries are blank:

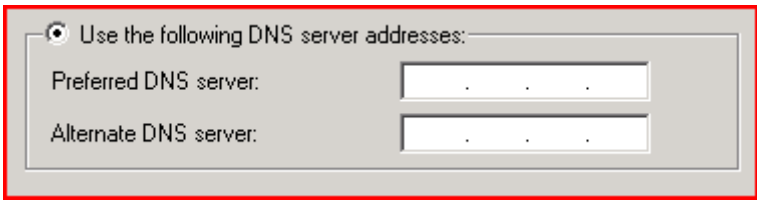


Figure 2-11: DNS Entry

15. Click the ***OK*** button on the ***Internet Protocol TCP/IP Settings*** window.
16. Click the ***OK*** button on the ***Local Area Connection Properties*** window.
17. Click the ***Close*** button on the ***Local Area Connection Status*** window.
18. Close the ***Network Connections*** window by clicking on the ***X*** in the top right hand corner.

Changing the IP Address of the PC in Windows XP

1. Disconnect your PC from any Ethernet network it may be connected to.
2. Right-click on ***My Network Places*** and choose ***Properties*** from the menu.

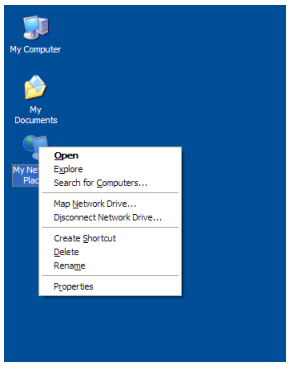


Figure 2-12: Network Properties

3. You should now see the ***Network Connections*** window:

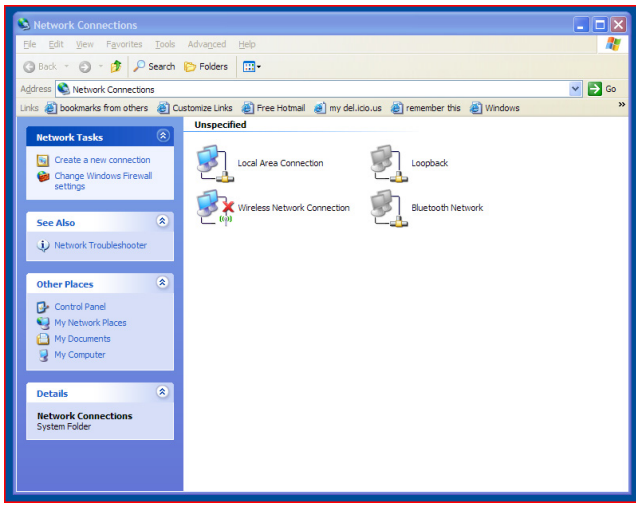


Figure 2-13: Network Connections

4. Double-click the ***Local Area Connection*** icon.
5. You should now see the ***Local Area Connection Status*** window.

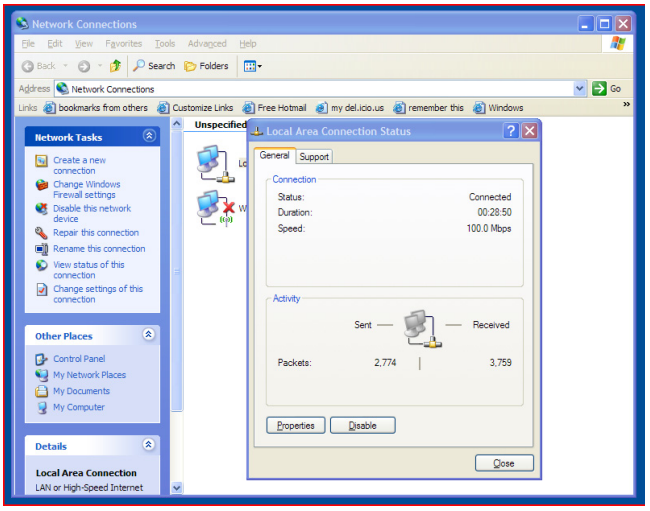


Figure 2-14: Local Area Connection Status

6. Click on the ***Properties*** button.
7. You should now see the ***Local Area Connection Properties*** window:

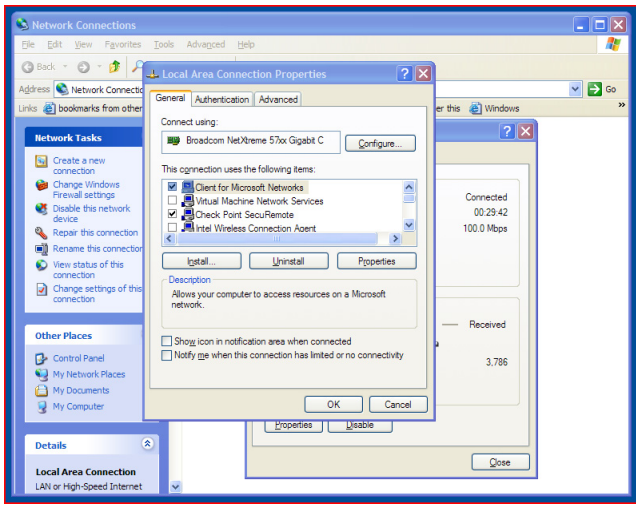


Figure 2-15: Local Area Connection Properties

8. Select the entry ***Internet Protocol TCP/IP***. Note that you may have to scroll down through the list using the scroll-bars on the right.
9. Then Click on the ***Properties*** button.
10. You should then see the ***Internet Protocol TCP/IP Properties*** window:

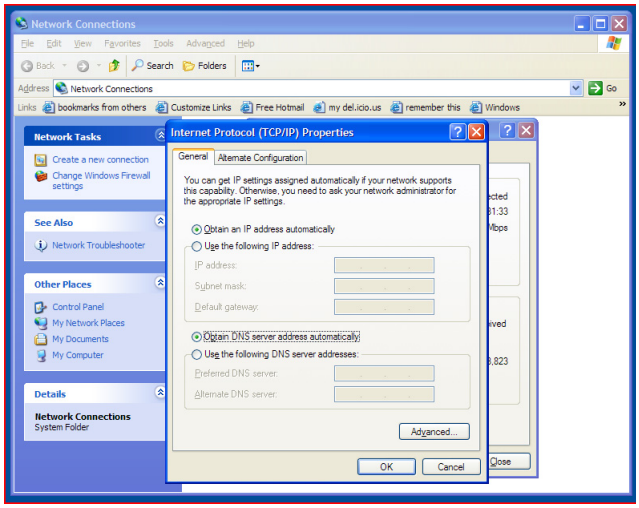


Figure 2-16: Internet Protocol Properties

11. At this point it would be prudent to record any of the settings that you currently have in the ***Internet Protocol TCP/IP Settings*** including anything that is in the ***advanced*** configuration.
12. Make sure that ***Use the following IP address*** is selected (not ***Obtain an IP address automatically***).
13. Change the IP Address to 10.0.0.2 and the subnet mask to 255.0.0.0 (leave ***Default gateway*** blank):

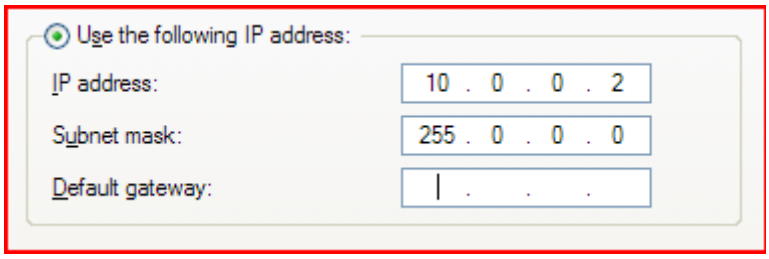


Figure 2-17: IP Address Setup

14. Make sure that all of the ***DNS*** entries are blank:

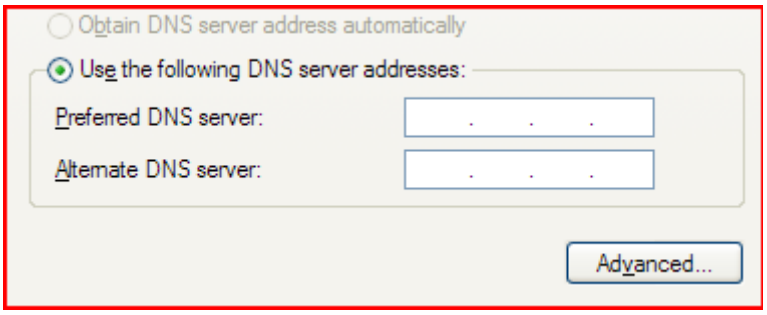


Figure 2-18: DNS Settings

15. Click the ***OK*** button on the ***Internet Protocol TCP/IP Settings*** window.
16. Click the ***OK*** button on the ***Local Area Connection Properties*** window.
17. Click the ***Close*** button on the ***Local Area Connection Status*** window.
18. Close the ***Network Connections*** window by clicking on the ***X*** in the top right hand corner.

FIRST TIME CONFIGURATION OF THE UNIT

Note that this process will need to be done with each of the new units that need to be configured.

1. Connect one end of an Ethernet patch cord to the VoICE unit Lan2 connector and the other end to the hub or switch. Look out for (and avoid) connections called ‘uplink’ on your hub or switch – these are for connecting to another hub or switch.
2. Connect one end of an Ethernet patch cord to your PC’s Ethernet interface and the other end to the hub or switch.

Figure 2-19: Network Connection

3. Connect the power to your hub or switch.
4. If the VoICE unit does not power up immediately press the power button momentarily on the front panel – the power light should illuminate.

Figure 2-20: VoICE Unit Front Panel

5. Power up your PC.
6. Wait 60 seconds for the VoICE unit to start.

Changing the IP address of the VoICE2 Unit

Perform this operation for all of your VoICE units, giving them each a separate, unique IP address.

1. Start your web browser.
2. Enter into the ***Address Bar*** “10.0.0.1”.

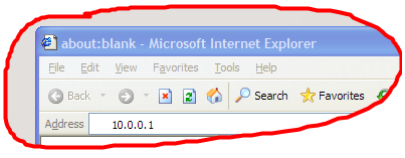


Figure 2-21: Web Browser Interface

3. Click ***GO***.
4. You will be prompted for a Username and a Password for the VoICE unit. The default username is ‘admin’ and the default password is ‘password’.

   Username = **admin**
   Password = **password**

   You should now see the main configuration page.

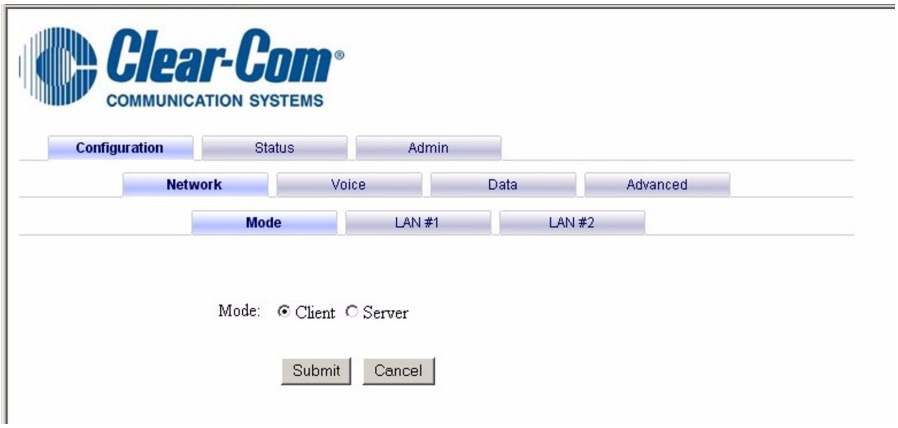
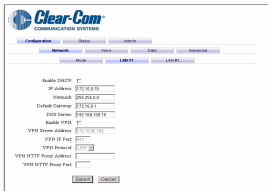


Figure 2-22: Main Configuration Page

5. Click on the LAN #1 tab.
6. Change the IP address, Subnet mask, default gateway and DNS server of the to the values supplied by your network administrator. Use the values recorded in the Network Settings table (see above). If you are configuring the VoICE Client then follow the first table. If you are configuring the VoICE Server then follow the second table.

   It is quite normal that the DNS server could be blank.

   If you have no default gateway and both units are on the same LAN then the default gateway should be “127.0.0.1” (C1=127, C2=0, C3=0, C4=1, G1=127, G2=0, G3=0, G4=1).

Client Field	Ref	Address	Screen
			
Client IP Address	**A**	**A1.A2.A3.A4**	
Client subnet mask	**B**	**B1.B2.B3.B4**	
Client default gateway	**C**	**C1.C2.C3.C4**	
Client DNS Server	**D**	**D1.D2.D3.D4**	

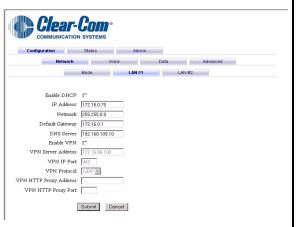
Server Field	Ref	Address	
			
Server IP Address	**E**	**E1.E2.E3.E4**	
Server subnet mask	**F**	**F1.F2.F3.F4**	
Server default gateway	**G**	**G1.G2.G3.G4**	
Server DNS Server	**H**	**H1.H2.H3.H4**	

Figure 2-23: Network Settings

7. Record the VoICE unit IP settings.
8. Click on ***Submit***.
9. After approximately 30 seconds you should see the network setup screen again.
10. Check that all of the settings have been accepted and are correct.

CONFIGURE THE VOICE UNIT FOR YOUR LAN

1. Once the IP Address change is completed, connect the VoICE unit connection ***LAN1*** to your LAN.

Figure 2-24: LAN Connection

2. Return the PC to its normal settings and reconnect the Ethernet connection back to your LAN.
3. The VoICE unit should be accessible from any PC on your network – open your browser and put the IP Address in the ***Address Bar***.
4. You should see the main configuration page:

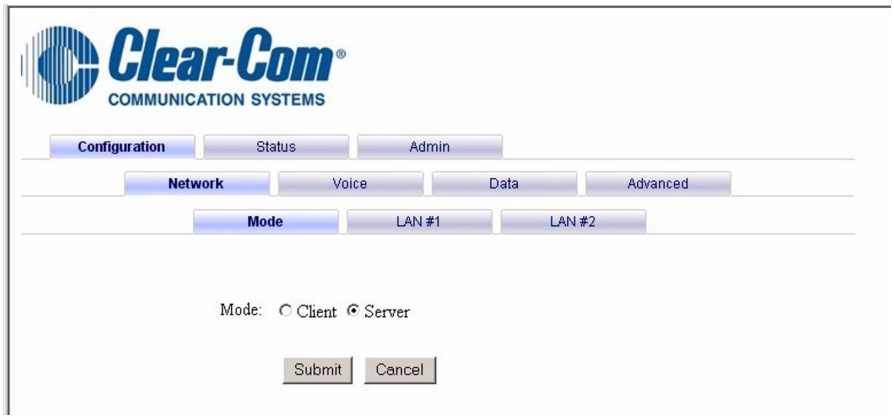


Figure 2-25: Configuration Setup

Note that the screenshot above is for the 'server' VoICE unit.

5. Click on the 'Client' or 'Server' radiobutton to configure the VoICE unit as a client or server and click on the 'Submit' button.
6. Click on the 'Configuration' tab then the 'Data' tab.

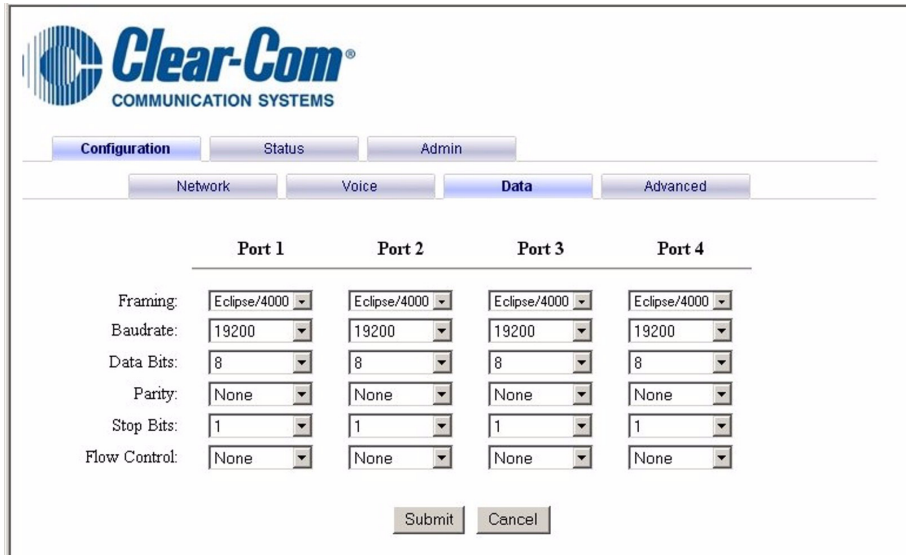


Figure 2-26: Serial Port Configuration

7. Check that the ***Framing*** is correctly set. This option controls the Framing for ethernet packets and must be correctly set to communicate with matrices.
    i. This option is irrelevant if the link does not use intercom panels.
    ii. Select 'ClearCom' if the link is to an Eclipse or 4000 Series II Matrix.
    iii. Select 'MatrixPlus' if the link is to a Matrix Plus 3 system. Ensure that the baud rate at the Matrix Plus 3 is set to the same rate as the VoICE unit.

iv. Select ‘None’ if the port is not connected to an Eclipse, 4000 or Matrix Plus 3 system. The other options may be set as required to communicate with the device.

8. Select 19200 for the Clear-Com Eclipse series (Eclipse Omega, Eclipse Median, Eclipse Pico, Eclipse 208, Eclipse 32).
   Check that the ***Serial Baudrate*** is configured for your use:

   i. This option is irrelevant if the link does not use intercom panels.

   ii. Select 9600 for Clear-Com 4000 series 2 (with a 4000 Pico, 4000 4U or 4000 9U matrix and intelligent panels).

   iii. Select 19200 for the Clear-Com Eclipse series (Eclipse Omega, Eclipse Median, Eclipse Pico, Eclipse 208, Eclipse 32).

The remaining parameters should normally be left set to the default values unless there is a specific known requirement for the equipment connected to the port.

Configuring the Client VoICE unit

After completing the previous steps for the Server and the Client, the basic set-up for each is completed and they are working on the LAN.

It is now necessary to configure the Client to connect to the Server and complete the initial setup.

1. Open the web browser.
2. Enter the Client’s IP Address in the ***Address Bar***.
3. You should see the Client’s main configuration screen:

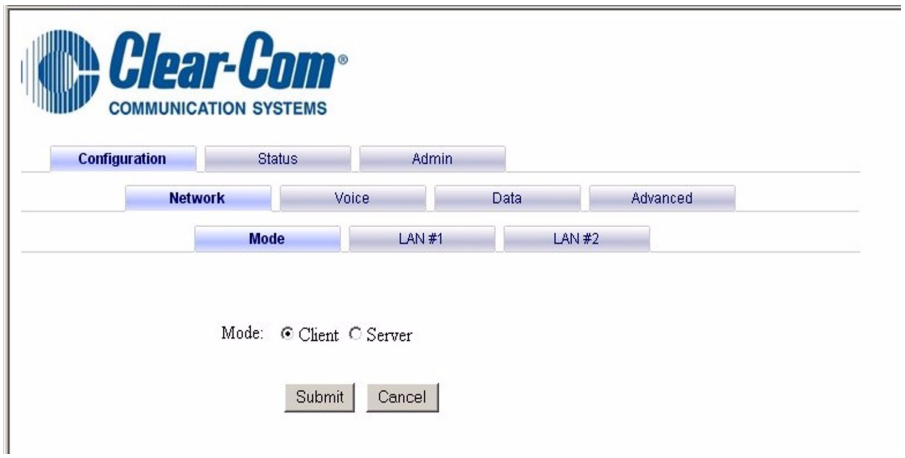


Figure 2-27: Client Configuration Screen

Select the ‘Configuration’ and then ‘Voice’ tab to open the configuration screen.

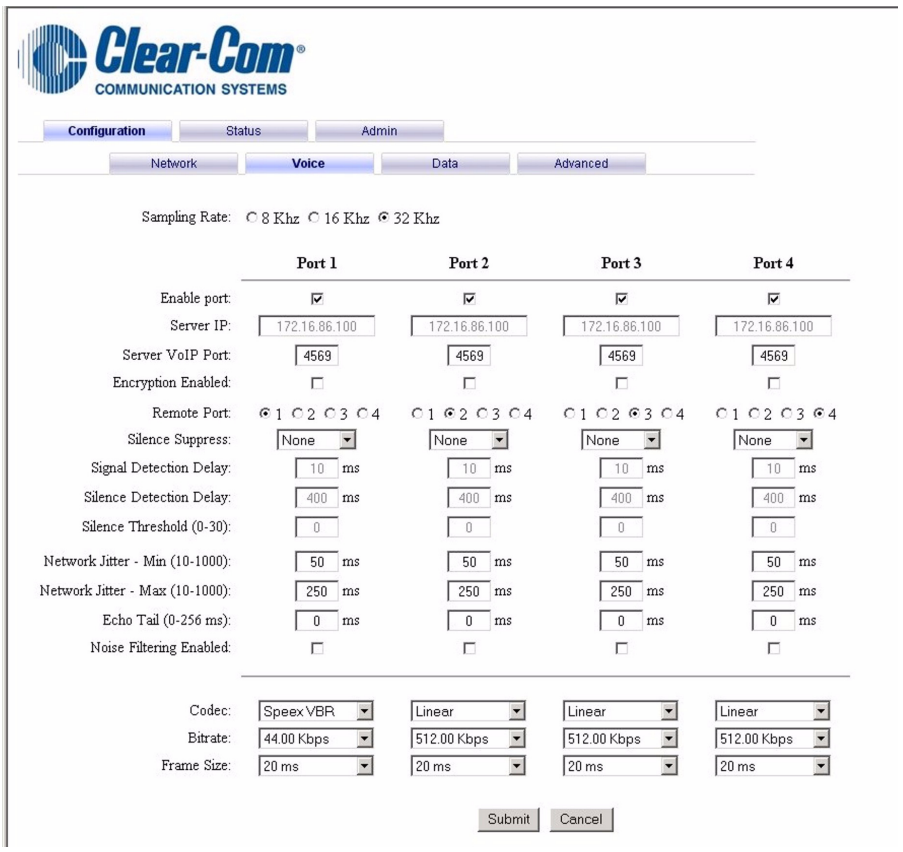


Figure 2-28: Client Configuration Screen

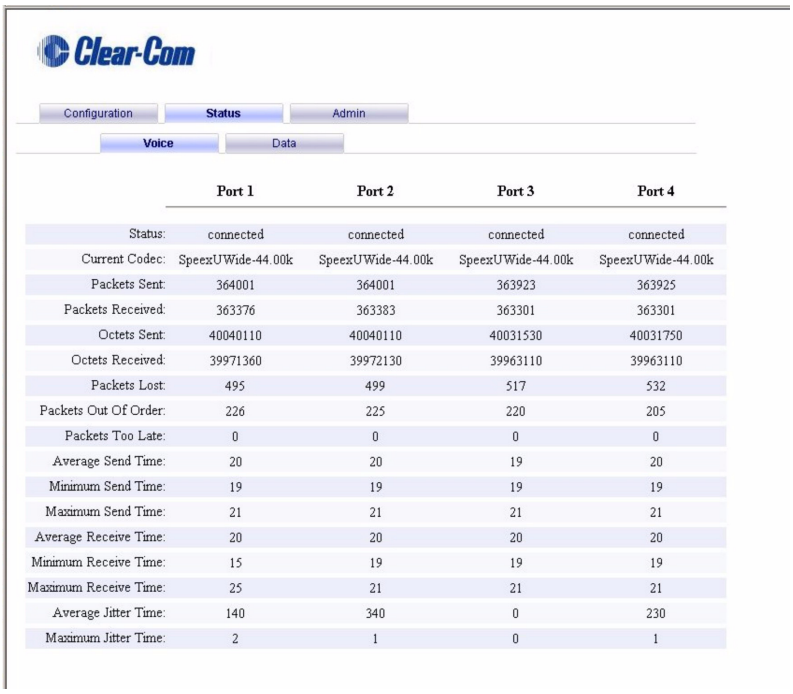
4. Note that the ***Client*** radio button is checked.
5. Enter the Server's IP Address in the ***Server IP*** text box in the configuration- tab for each of the ports you want to connect. Refer to the relevant section in Chapter 3 for more information regarding the settings on this page.
6. Click the ***Submit*** button.
7. The Client should now connect to the Server and the port status LEDs for that port on the client and server units should illuminate to show the port status.

Figure 2-29: Front Panel LEDs

Port Status LEDs 1 - 4 indicate the status of the related port. The LED indication states are:

- Off - The port is not enabled.
- Flashing Green - the port is enabled but not connected.
- Steady Green - the port is connected to a VoICE unit.

8. Click on the ‘Status’ and then ‘Voice’ tabs.
9. You should now see on the statistics page that all enabled connections show ‘connected’:



	Port 1	Port 2	Port 3	Port 4
Status:	connected	connected	connected	connected
Current Codec:	SpeexUWide-44.00k	SpeexUWide-44.00k	SpeexUWide-44.00k	SpeexUWide-44.00k
Packets Sent:	364001	364001	363923	363925
Packets Received:	363376	363383	363301	363301
Octets Sent:	40040110	40040110	40031530	40031750
Octets Received:	39971360	39972130	39963110	39963110
Packets Lost:	495	499	517	532
Packets Out Of Order:	226	225	220	205
Packets Too Late:	0	0	0	0
Average Send Time:	20	20	19	20
Minimum Send Time:	19	19	19	19
Maximum Send Time:	21	21	21	21
Average Receive Time:	20	20	20	20
Minimum Receive Time:	15	19	19	19
Maximum Receive Time:	25	21	21	21
Average Jitter Time:	140	340	0	230
Maximum Jitter Time:	2	1	0	1

Figure 2-30: Statistics Screen

Connecting to a matrix

1. For each port required, connect the ***To Matrix*** row of connectors to a matrix using a standard straight RJ45 - RJ45 cable as one would directly connect a matrix to a panel.
2. Configure the matrix ports for panels.

Figure 2-31: Matrix Connection

Connecting to a panel

1. For each port required (and for the same ports as have been connected at the matrix end), connect the ***To Panel*** row of connectors to panels using a standard straight RJ45 - RJ45 cable as one would directly connect a matrix to a panel.
2. The intercom panel should configure and come online.

Figure 2-32: Panel Connection

3 INSTALLATION

INTRODUCTION

This chapter describes the installation and setup of the VoICE IP Interface product, including cable connections and configuration. The following subjects are covered in this chapter:

- Description
- Installation in a rack
- Wiring
- Setup

DESCRIPTION

The VoICE unit is a 1 RU rackmount module that allows panels and audio matrices to be connected over a standard network using Internet Protocol (IP). The units are configured using an internet browser running on a PC.

Figure 3-1: VoICE Unit Rear Connectors

CONNECTING THE VOICE UNIT

Here are the steps to connect and setup the product for the first time:

1. Make sure that all units are powered down (Power LEDs are off).
2. Connect one end of a standard Ethernet network cable to LAN1 port on the back of the VoICE unit. Connect the other end to an Ethernet port on a network device, e.g. a router or switch.
3. Connect one end of an Ethernet network cable to one of the numbered ports on the back of the VoICE unit (to a “TO PANEL” port if you connect to a panel and “TO MATRIX” port if you connect to an audio matrix). Connect the other end to a panel “TO MATRIX” RJ-45 port or to an audio matrix port.
4. Repeat this step to connect up to four ports to the audio matrix or to different panels.
5. Connect the power cable. The Power LED on the VoICE unit front panel will light up as soon as the power cable is connected properly.
6. Open a web browser on a PC that is in the same network as the unit and enter its IP address in the address bar. (see page 2-14).

Now you can configure your VoICE unit. See the following section for more information on the web interface.

CONFIGURING VOICE

This section will describe each web page on the Interface and each page's key functions. The Interface can be accessed via your web browser through use of a computer connected to the VoICE or to the same network as the VoICE.

Note that the IP default address can be reset - see "Reset IP addresses to default" on page 25.

In order to connect two together for the first time, you need to do the following (if you want more details, see the subsections below):

Note

Factory default address is 172.16.86.100. Factory set default server address is 172.16.86.101. Factory set default Client address is 172.16.86.102.

1. Power one unit up.
2. Open a web browser on a PC that is in the same network as the unit and enter the unit IP address in the address bar.
   The factory default network address is 172.16.86.100 unless the unit has been factory preconfigured with 172.16.86.101 for a server and 172.16.86.102 for a client.
3. Click on the LAN #1 tab and configure the proper network parameters. Click on the Submit button when done. Make sure you change at least the network address of one of the two VoICE units.
4. Enter the new network address in your web browser address bar.
5. Power second up.
6. Repeat steps 2 to 4.
7. Decide which one of the VoICE units will be the client. Click on its 'Configuration' then 'Mode' tab, select Client mode and enter the other 's network address in the Server IP text box. Click on the Submit button when done.

There are three main tabs: Configuration, Status and Admin.

CONFIGURATION TAB

The configuration tab consists of 4 subtabs for the different module Configurations:

1. Network
2. VoICE
3. Data
4. Advanced

NETWORK TAB

The Network subtab is split into 3; Mode, LAN #1 and LAN #2.

MODE TAB

The mode tab allows the VoICE unit function to be selected as client or server.

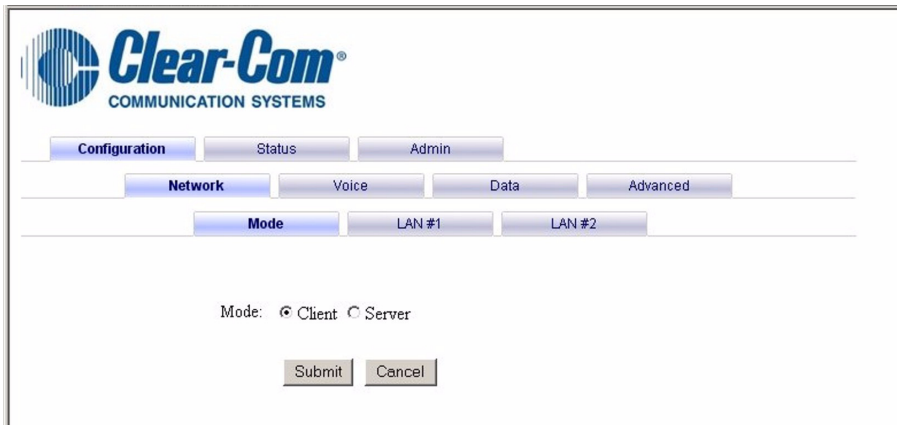


Figure 3-2: Configuration Mode Screen

MODE TAB ITEMS

Item	Description
Mode	This is the VoICE mode. In order to connect two (2) VoICE units together, one of them should be configured as a server and the other one as a client.

LAN #1 TAB

The LAN #1 tab allows the IP configuration for the first network port to be set up.

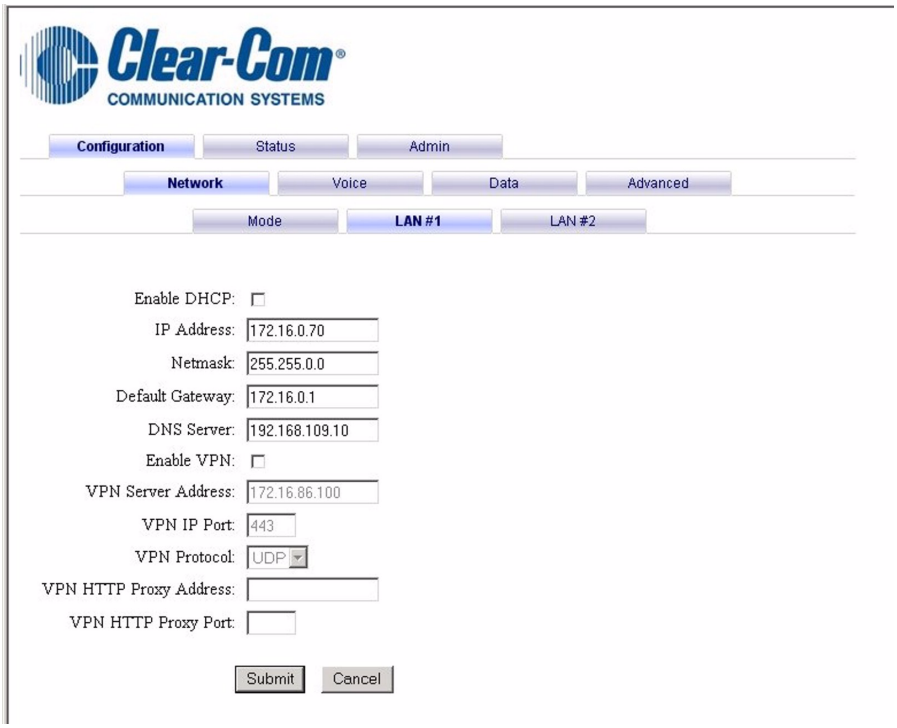


Figure 3-3: Configuration LAN #1 Screen

LAN #1 ITEMS

Item	Description
Enable DHCP	This option should be used only if your network supports DHCP.
IP Address	This is the IP address for the LAN1 ethernet interface.
Netmask	This is the subnet mask for the LAN1 ethernet interface.
Default Gateway	This is the address of the default gateway in your network.
DNS Server	This is the address of the DNS server in your network.
Enable VPN	This option enables VPN encryption between two VoICE units.
VPN Protocol	Whether to use the VPN in UDP or TCP mode. UDP will result in a better audio quality, but may not function under certain firewall and proxy restrictions.
VPN Port	This is the IP port used for the VPN tunnel. The default port is 443 which is the same as HTTPS.
VPN HTTP Proxy Address	If your network is setup with an HTTP proxy server, enter its address here.
VPN HTTP Proxy Port	If your network is setup with an HTTP proxy server, enter its port here.
Submit	This button is pressed to send the Lan #1 configuration to the VoICE unit.
Cancel	This button is pressed to cancel any selection that has not already been sent to the VoICE unit.

LAN #2 TAB

The LAN #2 tab allows the IP configuration for the second network port to be set up.

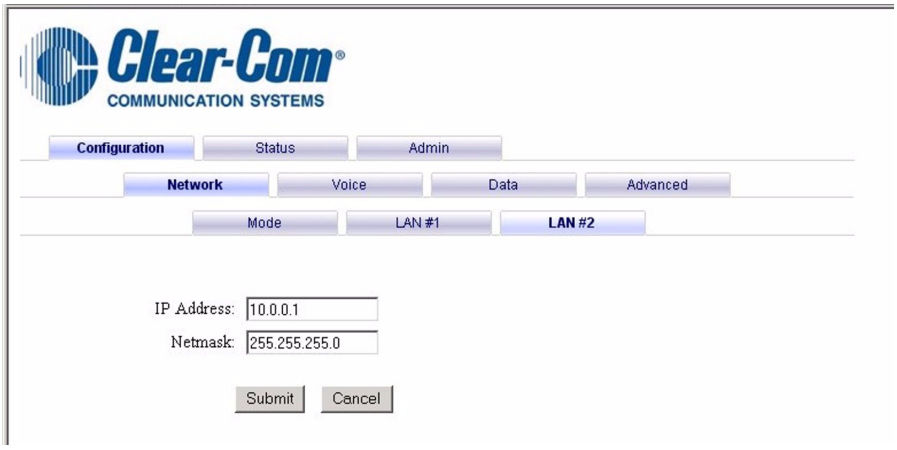


Figure 3-4: LAN #2 Configuration Screen

LAN #2 ITEMS

Items	Description
IP Address	This is the IP address for the LAN2 ethernet interface.
Netmask	This is the subnet mask for the LAN2 ethernet interface.

VOICE TAB

This page enables detailed configuration of each of the four available audio ports separately.

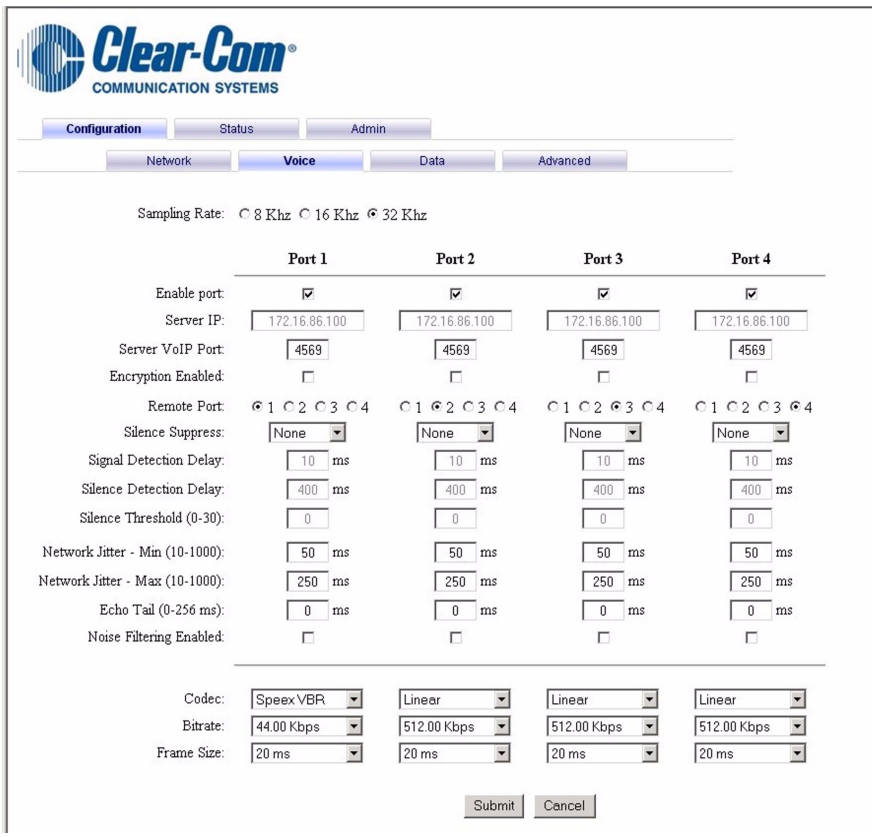


Figure 3-5: Configuration Screen

CONFIGURATION ITEMS

Item	Description
Sampling rate	The VoICE unit can only sample audio at one frequency for all ports. The available frequencies are 8kHz, 16kHz and 32kHz. A larger sampling frequency will provide better audio quality at the cost of more bandwidth.
Enable Port	Enables the port if checked.
Server IP	Only enabled if the VoICE unit is in client mode. It contains the address of the VoICE server to which this specific channel should connect.
Server VoIP Port	Only enabled if the VoICE unit is in client mode. It contains the IP port of the VoICE server to which this specific channel should connect. The default is 4569 for all channels. It needs to match the port in the configuration/advanced tab of the VoICE server.
Remote Port	Only enabled if theVoICE unit is in client mode. This represents the physical port of the VoICE server to which this port should connect to. For instance, it is possible to connect client port 1 to server port 2.
Silence Suppress Enabled	Enables suppression of silence in transmit mode. This option will significantly reduce the bandwidth usage.
Network Jitter Min	Amount of minimum buffer time.
Network Jitter Max	Amount of maximum buffer time. Reducing the maximum jitter buffer size will reduce overall delay but might cause audio packet loss.
Echo Tail	This time is the window within which the echo is cancelled. A value of zero (0) disables the echo cancel feature. The recommended echo tail value is approximately the third of the room reverberation time. For example, in a small room, reverberation time is in the order of 300 ms, so a tail length of 100 ms is a good choice.

CONFIGURATION ITEMS

Item	Description
Noise Filter Enable	Enables suppression of background noise if checked.
Codec	The choices of codec are: 1. 8kHz sampling rate a. Speex b. Speex ABR c. Speex VBR d. G.711 2. 16kHz sampling rate a. Speex a. Speex ABR a. Speex VBR a. G.722 b. Linear 3. 32 kHz Sampling rate a. Speex a. Speex ABR a. Speex VBR b. Linear The G.711 and G.722 codecs are low latency algorithms with only one available bitrate for each which will function optimally in a contained LAN with little or no packet loss. Speex is more latent but provides a large variety of bitrates for each of the sampling rate. Also, Speex provides Average Bitrate (ABR) and Variable Bitrate (VBR) which will optimize the audio quality for a given bit rate. The linear codec is simply a PCM pass through with no encoding. It is the optimal audio quality but uses a large amount of bandwidth.
Bitrate	The theoretical output bitrate of the codec chosen in kilobits per seconds. This does not take into consideration the number of milliseconds per IP packets as well as the IP/UDP overhead.

CONFIGURATION ITEMS

Item	Description
Frame Size	Number of millisecond of audio per IP/UDP packet. The larger the frame, the lower the network bandwidth. Note that the frame size is also the minimum initial latency.
Submit	This button is pressed to send the configuration to the VoICE unit.
Cancel	This button is pressed to cancel any selection that has not already been sent to the VoICE unit.

CODEC DESCRIPTIONS

The following table details the CODECs available and their characteristics. The characteristics given in the table are described in details below the table.

CODEC CHARACTERISTICS

Codec	Frame Size	Sample Rate	Codec Bandwidth	Total Bandwidth	Delay	Frequency Response
G.711	20 ms	8 kHz	64 kbps	78 (310) kbps	53 ms	30 Hz – 4 kHz
Linear	20 ms	16 kHz	256 kbps	280 (1120) kbps	60 ms	10 Hz – 8 kHz
Linear	20 ms	32 kHz	512 kbps	530 (2120) kbps	55 ms	10 Hz – 16 kHz
G.722	5 ms	16 kHz	64 kbps	116 (464) kbps	35 ms	10 Hz - 8 Hz
G.722	10 ms	16 kHz	64 kbps	90 (360) kbps	50 ms	10 Hz - 8 Hz
G.722	20 ms	16 kHz	64 kbps	77 (308) kbps	60 ms	10 Hz – 8 kHz
Speex	20 ms	8 kHz	2.15 kbps	15 (60) kbps	60 ms	30 Hz - 4 kHz
Speex	20 ms	8 kHz	3.95 kbps	17 (67) kbps	60 ms	30 Hz - 4 kHz

CODEC CHARACTERISTICS

Speex	20 ms	8 kHz	5.95 kbps	19 (70) kbps	60 ms	30 Hz - 4 kHz
Speex	20 ms	8 kHz	8.0 kbps	21 (75) kbps	60 ms	30 Hz - 4 kHz
Speex	20 ms	8 kHz	11.0 kbps	24 (95) kbps	60 ms	30 Hz - 4 kHz
Speex	20 ms	8 kHz	15.0 kbps	28 (111) kbps	60 ms	30 Hz - 4 kHz
Speex	20 ms	8 kHz	18.2 kbps	31 (124) kbps	60 ms	30 Hz - 4 kHz
Speex	20 ms	8 kHz	24.6 kbps	37 (150) kbps	60 ms	30 Hz - 4 kHz
Speex	20 ms	16 kHz	3.95 kbps	17 (67) kbps	66 ms	10 Hz - 8 kHz
Speex	20 ms	16 kHz	5.65 kbps	18 (74) kbps	66 ms	10 Hz - 8 kHz
Speex	20 ms	16 kHz	7.75 kbps	21 (82) kbps	66 ms	10 Hz - 8 kHz
Speex	20 ms	16 kHz	9.8 kbps	23 (90) kbps	66 ms	10 Hz – 8 kHz
Speex	20 ms	16 kHz	12.80 kbps	26 (102) kbps	66 ms	10 Hz - 8 kHz
Speex	20 ms	16 kHz	16.8 kbps	30 (118) kbps	66 ms	10 Hz – 8 kHz
Speex	20 ms	16 kHz	20.60 kbps	33 (134) kbps	66 ms	10 Hz - 8kHz
Speex	20 ms	16 kHz	23.8 kbps	37 (146) kbps	66 ms	10 Hz – 8 kHz
Speex	20 ms	16 kHz	27.80 kbps	41 (188) kbps	66 ms	10 Hz - 8 kHz
Speex	20 ms	16 kHz	34.2 kbps	47 (188) kbps	66 ms	10 Hz – 8 kHz
Speex	20 ms	16 kHz	42.2 kbps	57 (228) kbps	66 ms	10 Hz – 8 kHz
Speex	20 ms	32 kHz	3.95 kbps	17 (67) kbps	70 ms	10 Hz - 16 kHz

CODEC CHARACTERISTICS

Speex	20 ms	32 kHz	7.45 kbps	20 (81) kbps	70 ms	10 Hz - 16 kHz
Speex	20 ms	32 kHz	9.55 kbps	22 (89)	70 ms	10 Hz - 16 kHz
Speex	20 ms	32 kHz	11.6 kbps	24 (98) kbps	70 ms	10 Hz – 16 kHz
Speex	20 ms	32 kHz	14.6 kbps	27 (110) kbps	70 ms	10 Hz - 16 kHz
Speex	20 ms	32 kHz	18.6 kbps	31 (126) kbps	70 ms	10 Hz – 16 kHz
Speex	20 ms	32 kHz	22.4 kbps	35 (141) kbps	70 ms	10 Hz - 16 kHz
Speex	20 ms	32 kHz	25.6 kbps	38 (154) kbps	70 ms	10 Hz – 16 kHz
Speex	20 ms	32 kHz	29.6 kbps	42 (170)	70 ms	10 Hz - 16 kHz
Speex	20 ms	32 kHz	36 kbps	49 (195) kbps	70 ms	10 Hz – 16 kHz
Speex	20 ms	32 kHz	44 kbps	57 (227) kbps	70 ms	10 Hz – 16 kHz

CODEC Characteristics

- **Sample Rate**: This is the rate at which the audio signal is sampled. 8KHz is the equivalent of telephone quality. The higher the sample rate is, the clearer is the sound. But a higher rate also means more bandwidth used in the IP network for equivalent quality. There are 3 different sample rates, 8, 16 and 32 KHz.
- **Codec Bandwidth**: This is the bandwidth taken by the encoded audio data. It does not include all the TCP/IP and VPN overhead.
- **Total Bandwidth**: That is the total bandwidth taken by the codec and the serial port (at 19,200 baud with full utilization) on one channel. The number in parenthesis is the bandwidth used when 4 channels are enabled. Those are average measurements in a dedicated network.
- **Delay**: This is the end-to-end delay measured on a dedicated private IP network while minimizing network jitter buffers to 10-20 ms and disabling echo cancel (setting echo tail to 0).

- **Frequency Response**: This range indicates the frequency response of the codec. All the frequencies in this range are linearly transported end-to-end. Frequencies outside this range are filtered out.

HOW TO CHOOSE A CODEC

Three factors are important when you are trying to determine which CODEC is better for you; bandwidth, delay and audio quality. The more quality you want, the more bandwidth you will use. High quality codecs also introduce more delay. The sampling rate is also an important factor because a higher sampling rate can give you a better audio quality but it will take more bandwidth. If you chose a high sampling rate with a low bandwidth, the resulting audio quality will suffer.

Therefore, to choose your codec you will first need to determine how much bandwidth you want to use or are allowed to use. Then based on that bandwidth and the number of channels you are planning to use, determine which codecs are better suited for your needs.

VBR/ABR CODEC

VoICE also provides leading edge **variable bit rate** (VBR) and **average bit rate** (ABR) codecs. For more technical information regarding the Speex codec, please visit www.speex.org.

SILENCE SUPPRESSION

Silence suppression can be enabled by selecting Fixed or Adaptive mode from the Silence suppression drop down list. The table below describes the configurable values for this feature:

SILENCE SUPPRESSION

Value	Description
Signal Detection Delay	The number of milliseconds of speech required to disable the silence suppression.
Silence Detection Delay	The number of milliseconds of silence required to activate the silence suppression.
Silence Threshold	Value between 0 and 30 representing a threshold of the signal energy required to disable the silence suppression. The higher the value, the more aggressive the suppression. This value is only required in Fixed mode.

The silence threshold calculation is done as follows:

1. An average value is calculated on the PCM samples in the buffer (the result is between 0-65535).
2. This linear result is turned to a logarithmic scale using a "linear to mu-law" function. (the result is between 0-255).
3. This logarithmic result is directly compared with the silence threshold when fixed threshold is used.

When adaptive threshold is used, every 400 ms, steps 1-3 are done and if the current signal average is below the threshold, the threshold is decreased by one. Otherwise it is increased by 1.

DATA TAB

The Data tab configures the four serial ports connected to panels or matrices.

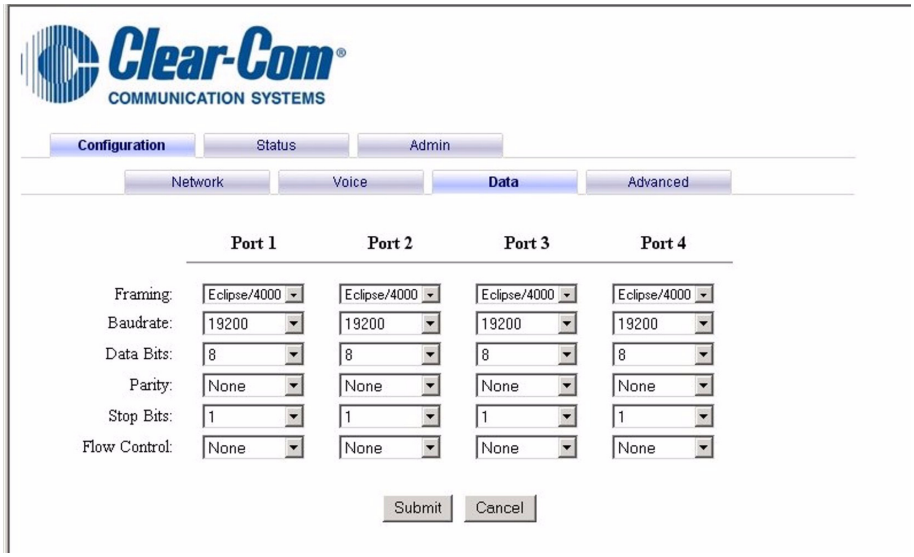


Figure 3-6: Data Tab Screen

DATA ITEMS

Item	Description
Framing	The VoICE unit is design to pass any RS422 serial data in parallel with the audio. Three types of framing methods are available: 1.None: no deframing. 2.Eclipse/4000: specific for Clear-Com panels on Eclipse or 4000 Series II. 3.Matrix Plus: specific for Clear-Com Matrix +3.
Baudrate	This is the baudrate that will be used on the specified serial connections on the To Matrix or the To Panel ports. This should match the device configuration. Default is 19200.
Data Bits	Number of Data bits settings on the serial protocol for the specified port. This need to match with the device to which it is connected to. Default is 8.
Parity	Serial protocol parity setting for the specified port. This need to match with the device to which it is connected to. Default is None.
Stop Bits	Serial protocol stop bit setting for the specified port. This need to match with the device to which it is connected to. Default is 1.
Flow Control	Serial protocol flow control setting for the specified port.This need to match with the device to which it is connected to. Default is none.

ADVANCED TAB

The Advanced tab allows the configuration of certain IP functions that may be required to optimize the function of the unit on some networks.

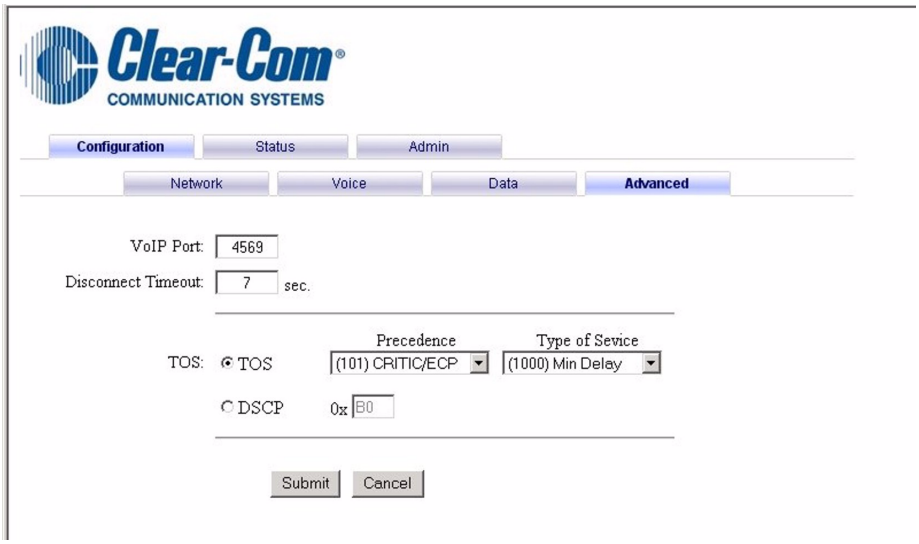


Figure 3-7: Advanced Tab

ADVANCED ITEMS

Item	Description
VoIP Port	The listening UDP port for all incoming packets.
Disconnect Timeout	Amount in seconds of the time required for a broken connection to disconnect (see note below).
TOS/DSCP	This allows the setting of the TOS field of all outgoing IP packets.

Note: If the network connection between a client and a server is lost both VoICE units must wait for the other to timeout before attempting reconnection. If a shorter timeout is configured on the client then it will appear to fail to reconnect until the server timeout is reached. Where possible the timeouts should be made the same so that after losing the network connection both client and server timeouts will expire simultaneously.

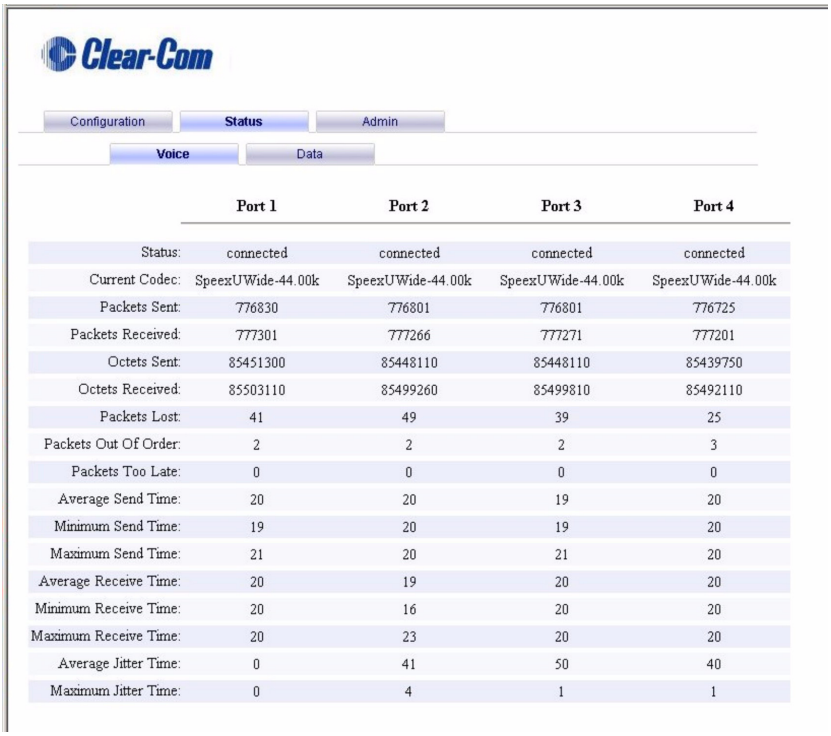
STATUS TAB

The Status tab is formed from 2 subtabs for the different module statistics.

1. Voice
2. Data

STATUS VOICE TAB

This page shows statistical information regarding the channels.

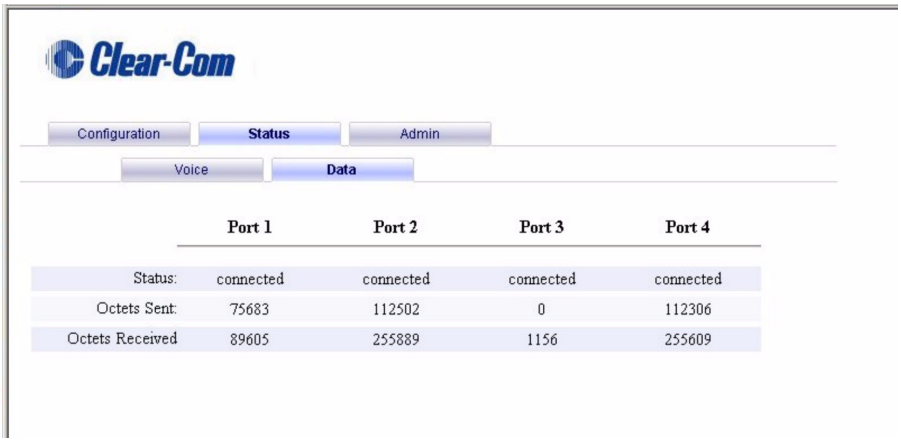


	Port 1	Port 2	Port 3	Port 4
Status:	connected	connected	connected	connected
Current Codec:	SpeexUWide-44.00k	SpeexUWide-44.00k	SpeexUWide-44.00k	SpeexUWide-44.00k
Packets Sent:	776830	776801	776801	776725
Packets Received:	777301	777266	777271	777201
Octets Sent:	85451300	85448110	85448110	85439750
Octets Received:	85503110	85499260	85499810	85492110
Packets Lost:	41	49	39	25
Packets Out Of Order:	2	2	2	3
Packets Too Late:	0	0	0	0
Average Send Time:	20	20	19	20
Minimum Send Time:	19	20	19	20
Maximum Send Time:	21	20	21	20
Average Receive Time:	20	19	20	20
Minimum Receive Time:	20	16	20	20
Maximum Receive Time:	20	23	20	20
Average Jitter Time:	0	41	50	40
Maximum Jitter Time:	0	4	1	1

Figure 3-8: Channels Status

DATA TAB

This page shows statistical information regarding data channels



	Port 1	Port 2	Port 3	Port 4
Status:	connected	connected	connected	connected
Octets Sent:	75683	112502	0	112306
Octets Received	89605	255889	1156	255609

Figure 3-9: Data Channels Tab

ADMIN TAB

The Admin tab is formed from 4 subtabs for the general settings.

1. System
2. Upgrade
3. Password
4. Log

SYSTEM TAB

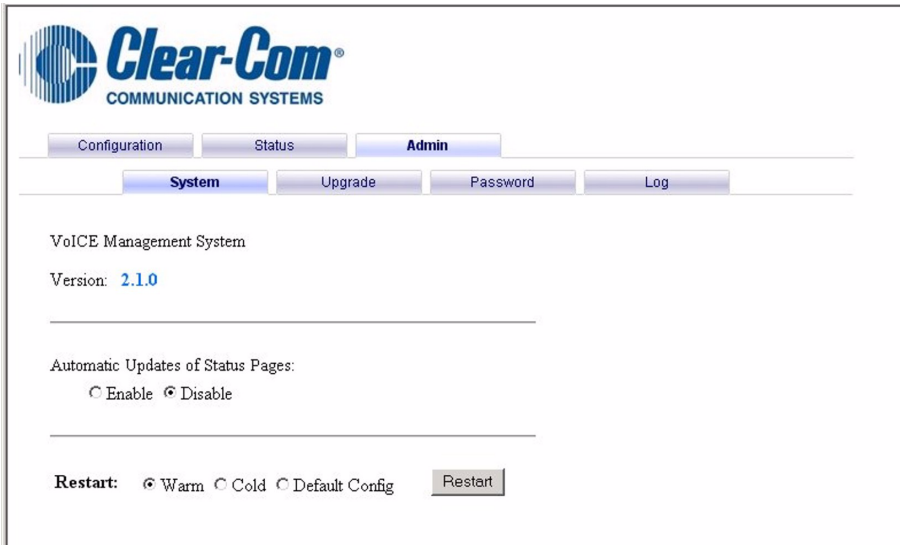


Figure 3-10: System Tab

SYSTEM ITEMS

Item	Description
Version	Current running version of the firmware.
Automatic Updates of Statistics pages	Enables or disables automatics refresh of the and data status pages. This feature may not work with some browsers.
Restart	Performs restart. A warm restart will reinitialize the firmware. A Cold restart will power cycle the VoICE unit. A default config restart will set all settings back to the factory default except LAN1 and LAN2 IP addresses and password.

UPGRADE TAB

Selecting this tab allows the system firmware to be upgraded to a newer release that may be supplied. It also allows a previous version of the firmware to be reinstalled if required.

If a previous version of the system firmware is being installed and is reverting to a previous major release it is recommended that the system recovery CD is used (See “Recovery CD” on page 3-30).

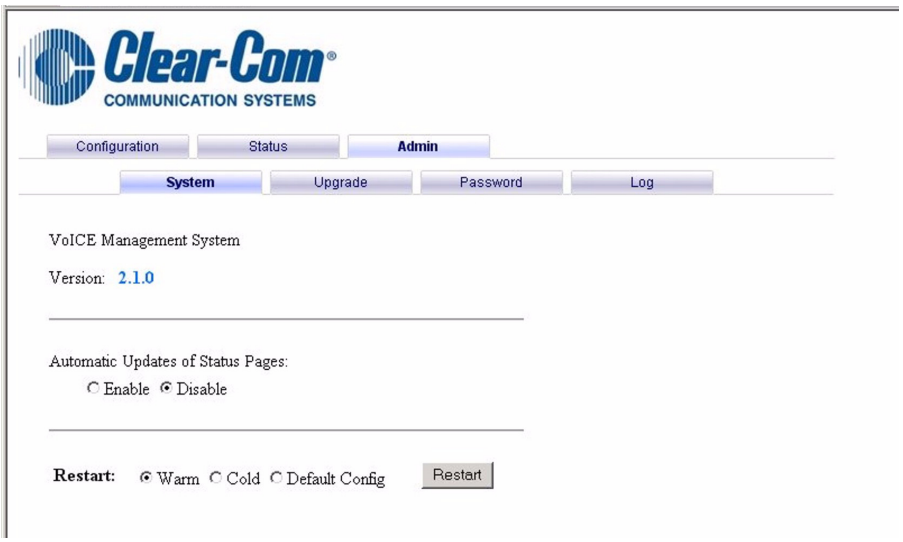


Figure 3-11: Upgrade Tab Screen

UPGRADE TAB ITEMS

Item	Description
New Filename	This text box is used to specify the IMG file (PN 750101Z) to upgrade the Eclipse.
Browse…	This button is used to browse your local drives to find the proper IMG file for upgrade.
Upgrade	This button is used to start the upgrade procedure.

The firmware for the release covered by this manual is supplied on the CD that contains this manual.

To install the firmware click on the ‘Browse’ button to browse the CD and select the firmware file.

After selecting the file so that the name appears on the ‘New Filename’ line click on the ‘Upgrade’ button to upgrade the firmware. The

upgrade process will start and the status will be displayed on the screen.

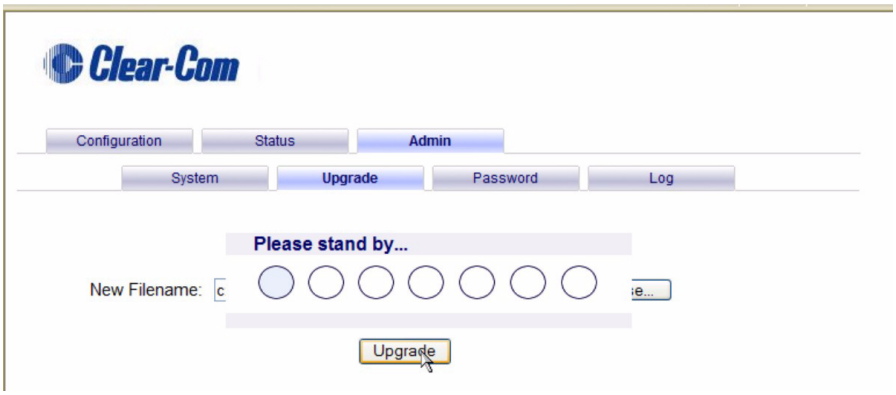


Figure 3-12: Upgrade Progress Display

The upgrade process will locate the firmware file and display the file properties for confirmation.

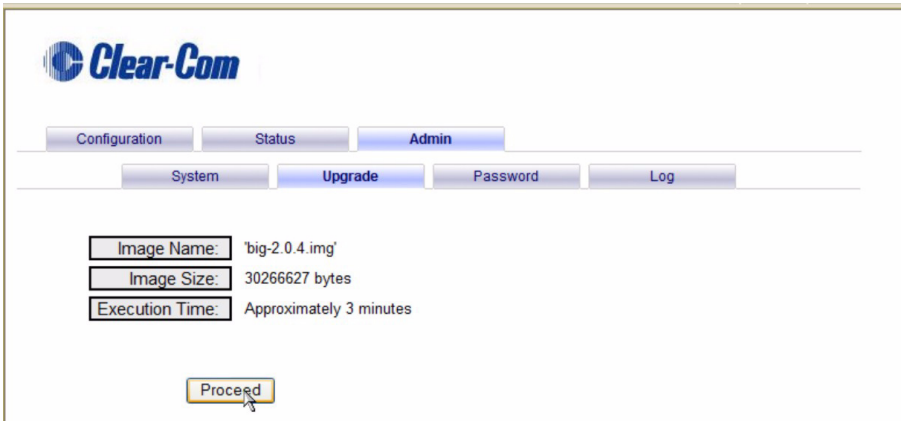


Figure 3-13: Upgrade File Confirmation

Click on the ‘Proceed’ button to upgrade using the specified file. The upgrade will start and the screen will display an activity indicator.

Figure 3-14: Upgrade in Progress

When the upgrade is finished a completion message will be displayed while the VoICE unit reboots.

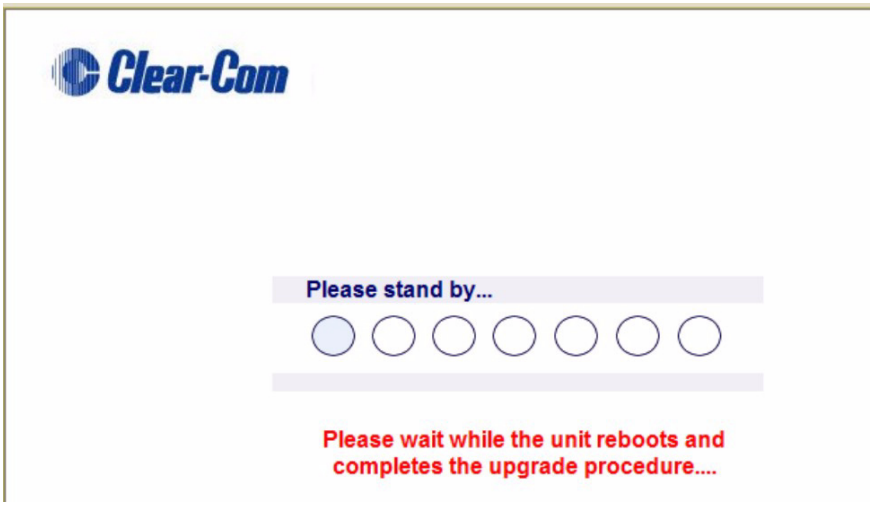


Figure 3-15: Unit Reboot

After the VoICE unit has rebooted the Admin login dialogue is displayed and the user must log in again to complete the configuration of the VoICE unit.

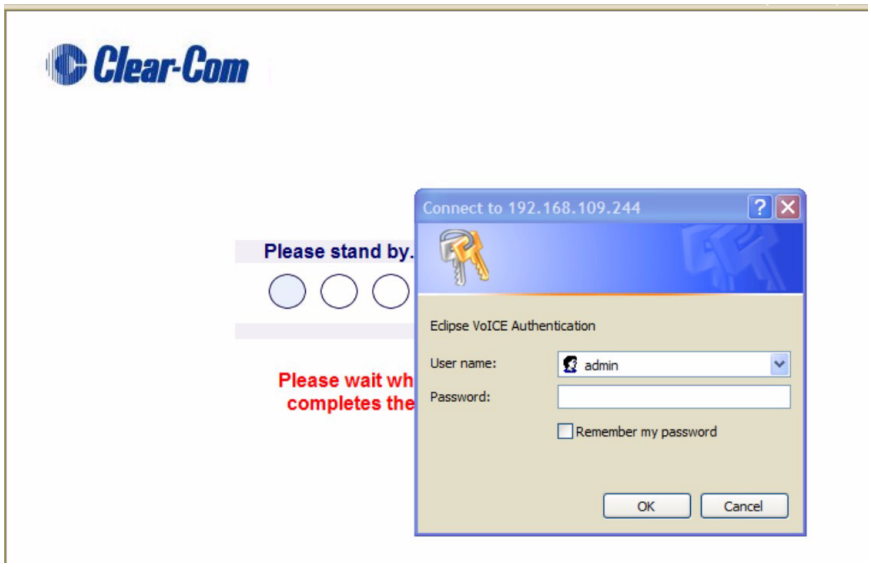


Figure 3-16: Firmware Upgrade Completion Screen

PASSWORD TAB

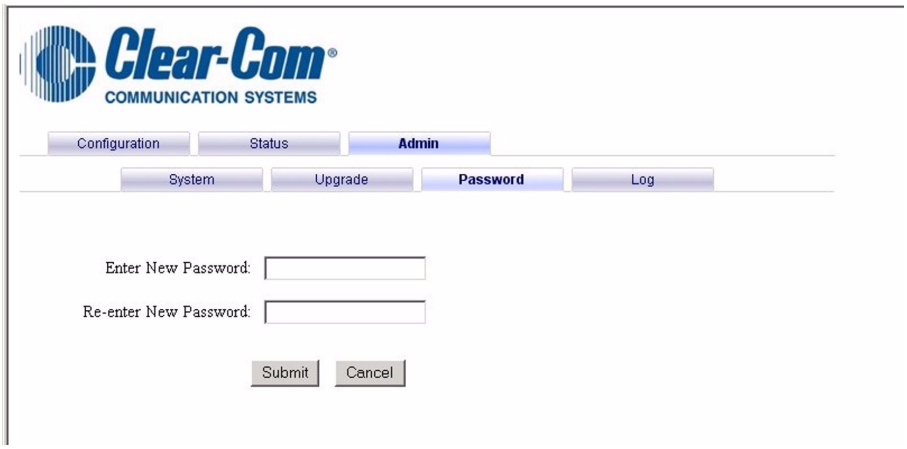


Figure 3-17: Password Tab

PASSWORD ITEMS

Item	Description
Enter new password	Text field to enter the new desired password.
Re-Enter New pass-word	Verification that the new password was the desired one.
Submit	To submit the password change.

LOG TAB

The Log tab accesses the log of status messages from the VoICE unit. These messages may be requested by a VGC engineer for problems to be diagnosed. Please ensure that under normal operating conditions the trace level is set to the lowest value.

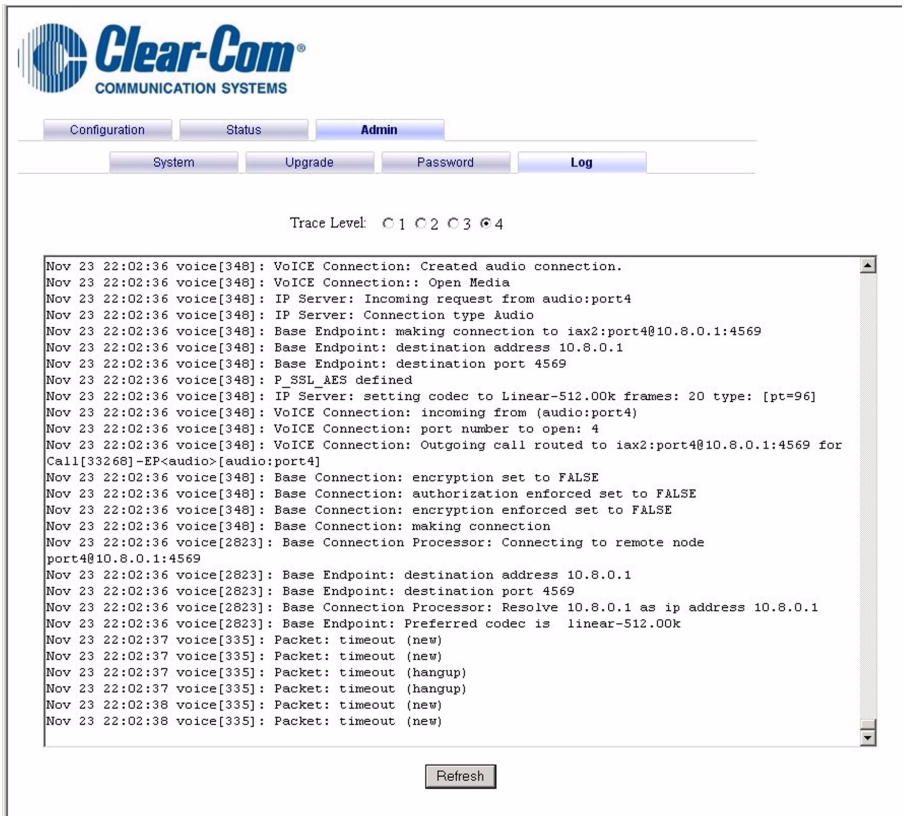


Figure 3-18: Logs Tab Screen

LOGS TAB ITEMS

Item	Description
Trace Level	This is the verbosity level of the log. A higher value means a more verbose log. Recommended Trace Level for normal operation is the lowest.
Log Window	This window shows the content of the message log on the VoICE unit.
Refresh	This button is pressed to refresh the content of the Log Window.

RESET IP ADDRESSES TO DEFAULT

If at some point in time the IP addresses of both Lan #1 and Lan #2 are unknown, you can follow these instructions to reset them to the factory default.

1. Connect a straight through (not cross-over) CAT-5 cable between the "To Matrix" port 1 with the "To Panel" port 4 of the same unit forming a loopback.

Figure 3-19: IP Reset Cable Setup

2. Reboot the unit by pressing and holding the power button for five seconds to turn it off and then pressing the power button again to turn it on or by removing power and reapplying power.
3. Remove the cable after the reboot.
4. The LAN1 IP will be 172.16.86.100 and LAN2 will be 10.0.0.1.

TROUBLESHOOTING FAQS

1. I'm trying to access the VoICE unit's Web Interface, but I do not see the screen. Instead, I see a screen saying "404 Forbidden".

If you are using Internet Explorer, perform the following steps until you see the web interface (Netscape Navigator and Mozilla Firefox will require similar steps):

a. Click File. Make sure Work Offline is NOT checked.

b. Press CTRL + F5. This is a hard refresh, which will force Internet Explorer to load new webpages, not cached ones.

c. Click Tools. Click Internet Options. Click the Security tab. Click the Default level button. Make sure the security level is Medium or lower. Then click the OK button.

2. I'm trying to access the VoICE unit's Web Interface, but I do not see the screen. Instead, I see a screen saying "The page cannot be displayed.The page you are looking for is currently unavailable. The Web site might be experiencing technical difficulties, or you may need to adjust your browser settings."

The VoICE unit might not be reachable from your computer. Verify the following things:

a. Verify that the VoICE unit is powered on (Power LED is turned on)

b. Verify that your computer is properly connected to the network:

c. In the command prompt, type **ipconfig**. Verify that you have a proper IP address.

d. Verify that the VoICE unit is properly connected to the network:

In a command prompt on your computer, type **ping** followed by the VoICE unit's IP address and press the **Enter** key. For example, if the unit address is still the factory default address, 172.16.86.100, you would enter **ping 172.16.86.100** and press the **Enter** key.

- If you do NOT get a reply, try the ping command from a different computer to verify that your original computer is not the cause of the problem.
- If you get a reply, the computer can reach the VoICE unit.
- If you still do NOT get a reply, verify that the LAN1 port on the VoICE unit is properly connected to the network with an Ethernet cable.

e. Verify that the LAN 1 port is configured with the IP address which you are trying to access. If you don't remember the address and you don't have access to network equipment to tell you the network address, do the following:

- Disconnect your computer from your network and set its IP address to 10.0.0.2 and Netmask to 255.255.255.0.
- Connect a "crossover" Ethernet cable from your computer to LAN2 port on the VoICE unit.
- Open a web browser and enter http://10.0.0.1 in the address bar.
- Click on the network tab to verify the System IP address.
- Disconnect the "crossover" Ethernet cable and change back the IP address on your computer.
- Reconnect your computer to your network.
- If the result is successful (nothing displayed is success), try to upgrade again with this file. If the upgrade fails again, contact customer support.
- If the result is a failure, your file is corrupted. Contact customer support.

3. Both VoICE units are running and I can communicate with each of them but the statistics tab shows that all ports are disconnected.

Verify the following:

a. Refresh the statistics tab and verify that the ports are enabled (checkbox checked)

b. Verify in the network tab that they have different IP address and that VPN is configured the same (enabled or disabled) for both.

c. Verify in the configuration tab of the client that the address in the Server IP box matches the System IP address of the server .

d. If VPN is enabled, verify in the advanced tab that the VPN port is the same for both.

e. If everything seems OK, go to the advanced tab and do a warm restart on both VoICE units.

4. I want to select a different codec but the interface does not allow it.

The codec can only be selected on a client VoICE, not on the server.

5. I chose a codec on the client Interface but the server still shows that a different codec is configured.

The codec configured on the server is not relevant. The client chooses the codec when it connects to the server. The statistics tab in the Interface will show the codec really used in the connection.

6. The VoICE units are connected and sound is coming out but there are many clicks and I am losing parts of the conversation.

The IP communication between the is bad. Try the following:

a. Increase the maximum jitter range.

b. Select a lower bandwidth codec.

7. The VoICE units are connected and sound is coming out but it is muffled. It sounds as if the treble control had been turned all the way down.

The sampling rate is not sufficient for your needs. Select a codec with a higher sampling rate.

8. The VoICE units are connected and sound is coming out but I constantly have echo coming back to me.

The echo cancel is either turned off or not properly configured. Verify the Echo tail setting in the Configuration/ tab of the VoICE unit at the far-end. When it comes to echo tail length, longer is NOT necessarily better. Actually, the longer the tail length, the longer it takes for the filter to adapt. But a tail length that is too short will not cancel enough echo. Try to adjust the echo tail to fit your needs. Remember that setting the echo tail to zero (0) will disable the echo cancel feature.

9. How can I get the physical address (MAC address) of a VoICE unit.

The physical address of a VoICE unit can be obtained via the IP to physical address translation table used by the Address Resolution Protocol (ARP) when the host PC and the VoICE unit are on the same network.

Open a DOS window and type the command ‘arp -d’ to clear the current table, then ping the VoICE unit with the DOS command ‘ping

xxx.xxx.xxx.xxx’ where xxx.xxx.xxx.xxx is the IP address of the VoICE unit.

Then type the command arp -a to display the new address resolution table which will show the IP address of the VoICE unit and the corresponding physical address.

RECOVERY CD

The CD supplied also contains an image for a recovery CD (PN 750100Z). This CD will allow systems that have become unusable, for example because the IP address is unknown, to be completely reset.

To use the recovery CD carry out the following steps:

1. First burn the recovery disk ISO image onto a CD.
2. Attach an external USB CDROM drive to the VoICE unit's USB port.
3. Restart the VoICE unit so it boots from the CDROM instead of the internal system.
4. The CDROM system with return the unit to its factory shipment condition. During this phase the LEDs on the front will flash sequentially to indicate that the recovery is in progress. When recovery is complete all the front LEDs will flash together.
5. When the VoICE unit restore is complete remove the external CDROM drive from the VoICE unit.
6. Restart the VoICE unit.
7. Configure the VoICE unit as described in this manual.

CABLE PINOUTS

The RJ-45 pinouts for the cables for connecting the VoICE unit to the LAN, panels and matrix are shown in this section. As stated in this chapter standard Ethernet CAT-5 cables are suitable.

LAN CONNECTOR

The LAN connection is an industry standard RJ-45 socket that allows the panel to be connected to a network or the ethernet port of a PC.

PIN	FUNCTION
1	Transmit data +
2	Transmit data –
3	Receive data +
4	Unused
5	Unused
6	Receive data –
7	Unused
8	Unused

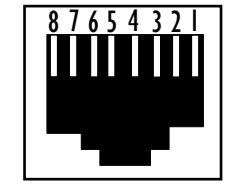


Figure 3-20: LAN Connector Pinout

MATRIX AND PANEL CABLE PINOUT

The matrix and panel cables use a 4-pair wiring scheme between the VoICE unit and matrix and between the VoICE unit and panels. The matrix connection requires an MVX-A16 card in the frame (except for Eclipse Pico and Eclipse-32).

The cable wiring for the matrix to the “TO MATRIX” port on the VoICE unit is shown in Figure 3-21.

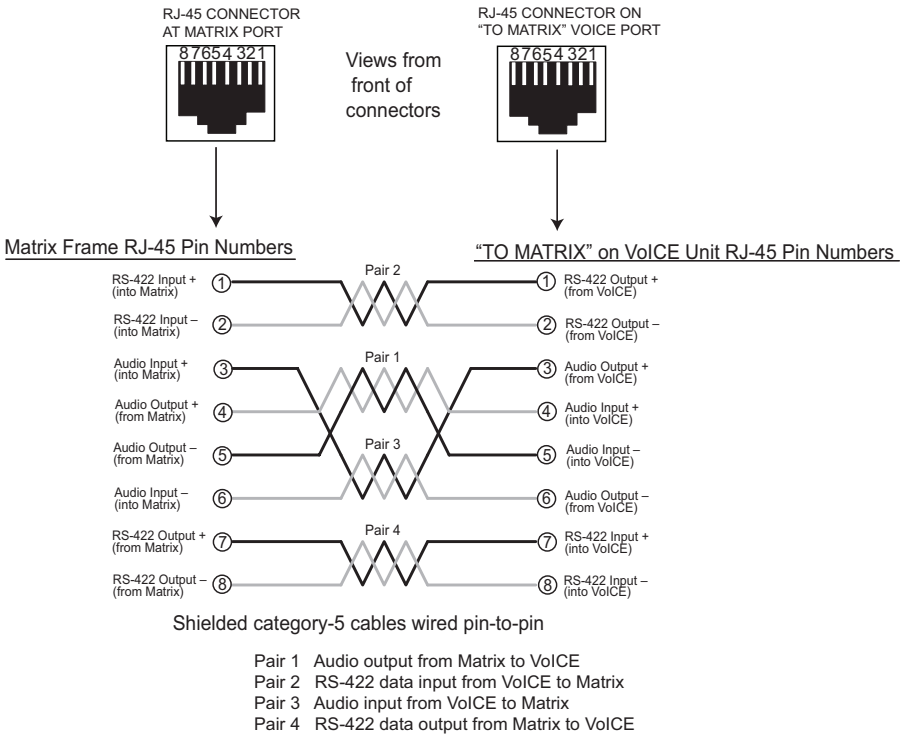
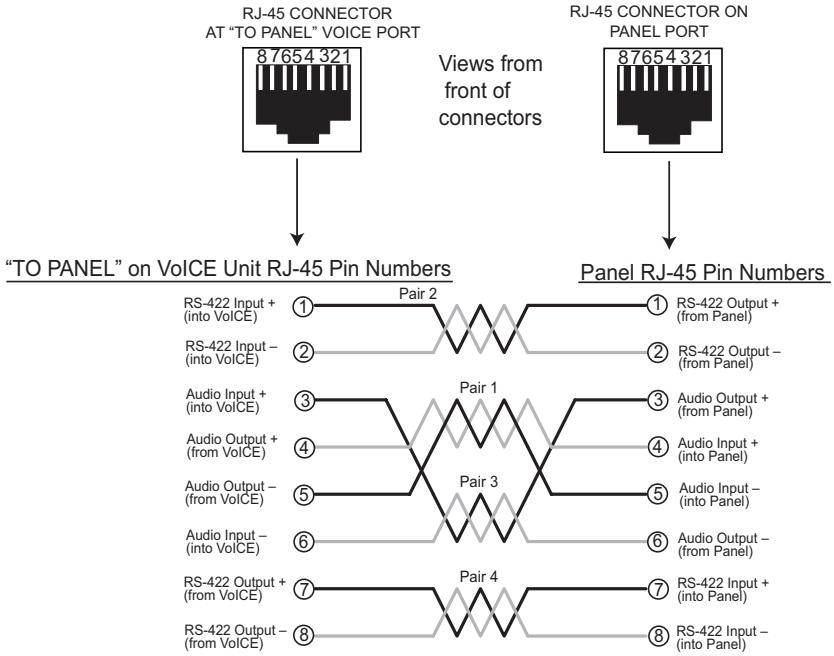


Figure 3-21: CAT-5 Pinout for Matrix to VoICE Connections

The cable wiring for the “TO PANEL” port on the VoICE unit to the panel is shown in Figure 3-22.



Shielded category-5 cables wired pin-to-pin

Pair 1 Audio output from VoICE to Panel
Pair 2 RS-422 data input from Panel to VoICE
Pair 3 Audio input from Panel to VoICE
Pair 4 RS-422 data output from VoICE to Panel

Figure 3-22: CAT-5 Pinout for VoICE to Panel Connections

If the VoICE unit is to be used to connect third party equipment it may be advisable to omit the RS-422 connections (pins 1,2,7 and 8) to avoid spurious data being transmitted. An example of this type of connection is shown in Table 3-1 below.

VOICE TO THIRD PARTY RJ-45 PINOUT

VoICE "TO MATRIX" Port		Third Party Frame RJ-45
1	N/C	1
2	N/C	2
3	Audio + from VoICE to third party frame	3
4	Audio + to VoICE from third party frame	4
5	Audio - to VoICE from third pary frame	5
6	Audio - from VoICE to third party frame	6
7	N/C	7
8	N/C	8

Table 3-1: Example VoICE to Third Party Frame

4 APPLICATIONS

REMOTE PANELS OVER IP

The VoICE unit can be used to intelligently link up to four panels to a remote matrix using Internet Protocol providing all the functionality as if locally connected without the need for a dedicated network connection.

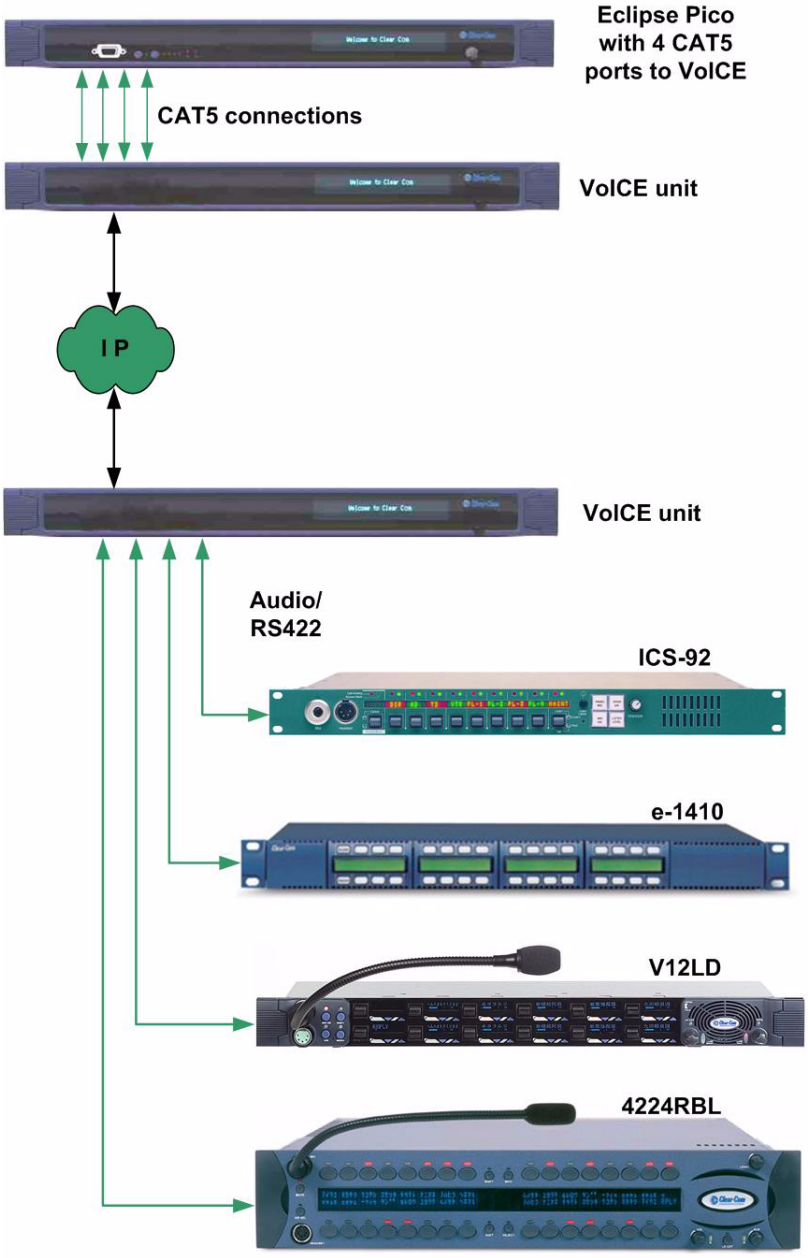


Figure 4-1: Remote Panels over IP

REMOTE MATRIX OVER IP

The VoICE unit can be used to intelligently link up to four remote matrix systems using Internet Protocol providing trunk functionality of matrix systems without the need for a dedicated network connection. Each VoICE unit handles up to four trunk lines.

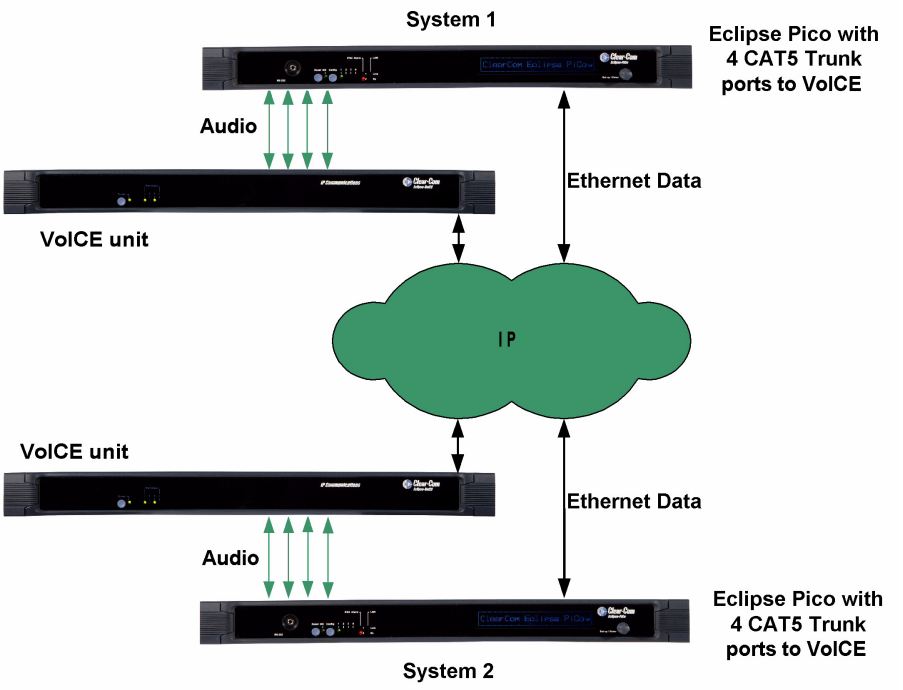


Figure 4-2: Remote Matrix over IP

Note: VoICE2 provides more efficient trunking by connecting 1 server to up to 4 clients and vice versa.

VOICE WITH OTHER SYSTEMS

The VoICE unit can be used to intelligently link up to four 4-wire Audio pairs or Asynchronous RS-422 data links between remotes sites using Internet Protocol.

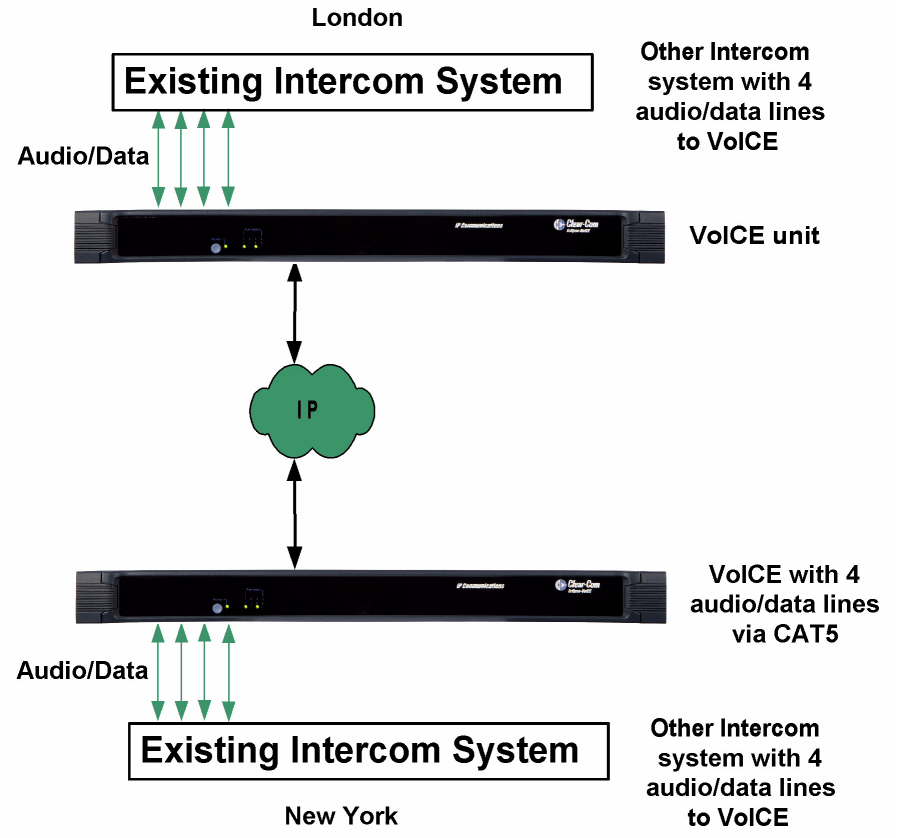


Figure 4-3: VoICE with Other Systems

SOFT-VOICE OPERATION

The VoICE unit can be used to intelligently link up to four remote PC-based intercom panels to matrix ports with the SOFT-VoICE PC application.

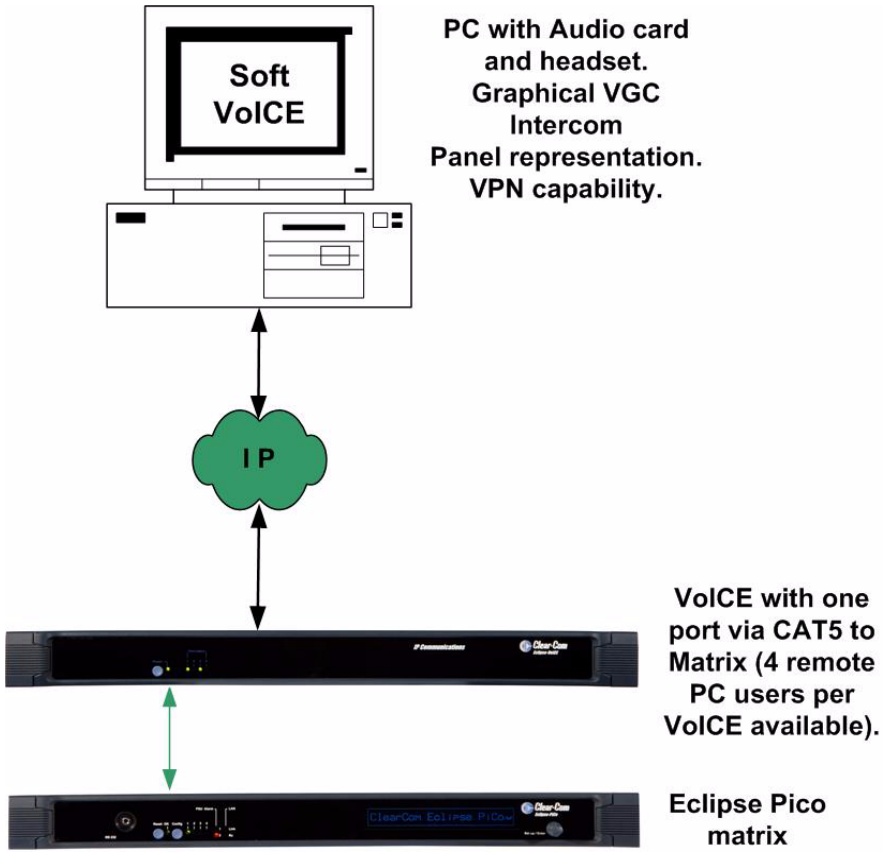


Figure 4-4: SOFT-VoICE Operation

5 SOFT-VoICE

INSTALLATION

To install SOFT-VoICE load the installation media (normally a CDROM) and follow the instruction to run the SOFT-VoICE installer. The SOFT-VoICE CDROM is designed to auto-run. If it does not, navigate to the root directory of the CDROM and run autostart-host.htm (required Internet Explorer 5.5 or later).

During the installation you will be required to enter the Serial Number provided with the CDROM (normally on the case label).

A series of screens will guide the user through the installation.

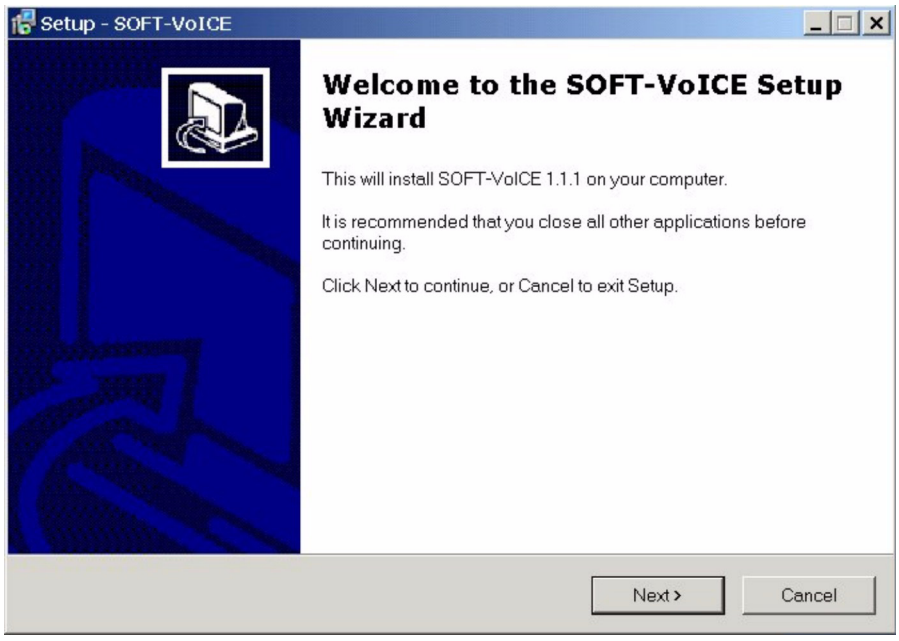


Figure 5-1: SOFT-VoICE Installation Start

Click on the 'Next' button to start the installation. The software license conditions will be displayed.

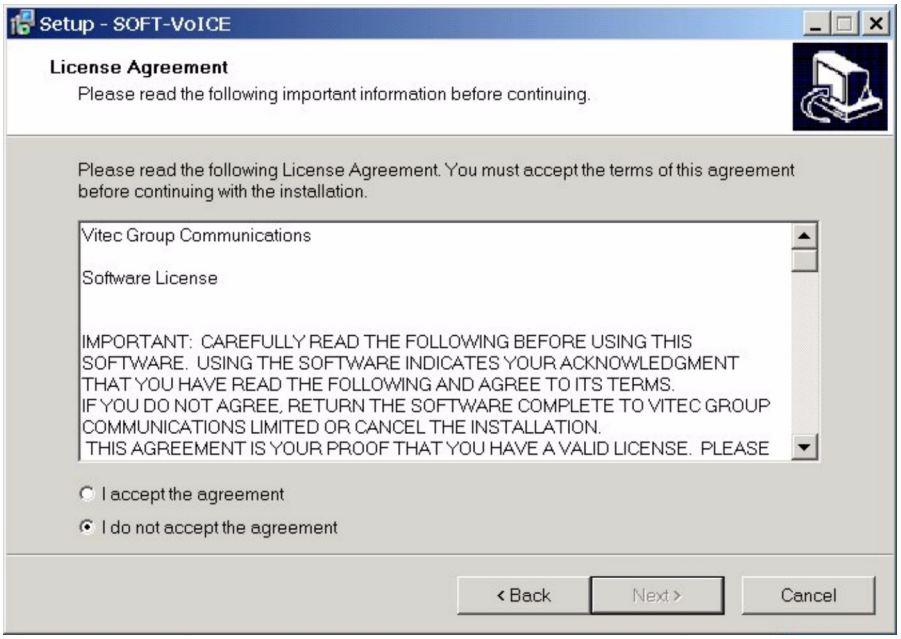


Figure 5-2: Software License

Click on the 'I accept the agreement' radio button to accept the license conditions and then click on the 'Next' button to continue with the installation. The user details and the SOFT-VoICE serial number will then be requested.

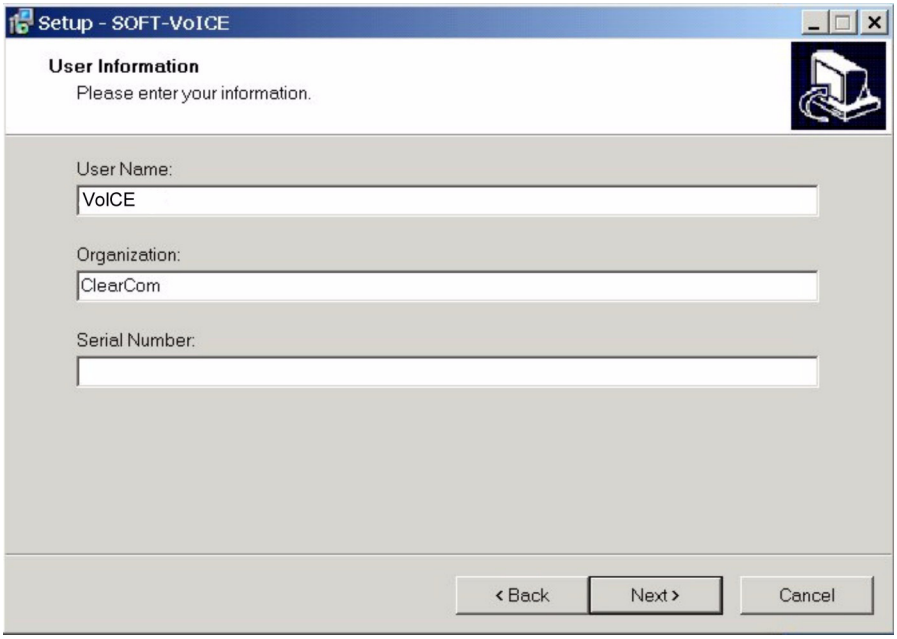


Figure 5-3: SOFT-VoICE User Details

Enter the required information and click on the ‘Next’ button. The default location where the software will be installed is displayed.

Note: The serial number consists of five groups of four characters and is on the back of the CD case. This serial number would have been given to you for each copy of SOFT-VoICE. When entering the serial number please include the hyphens between the groups of characters.

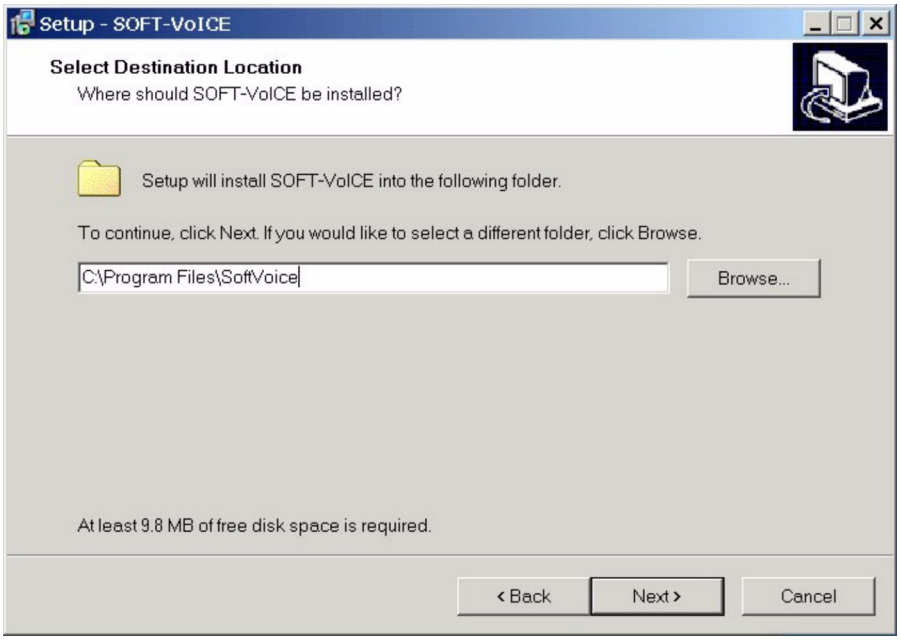


Figure 5-4: Default Program Folder

It is recommended that the default folder is accepted but if another location is required click on the ‘Browse’ button and browse to the folder or enter the folder directly. Click on the ‘Next’ button to proceed with the installation.

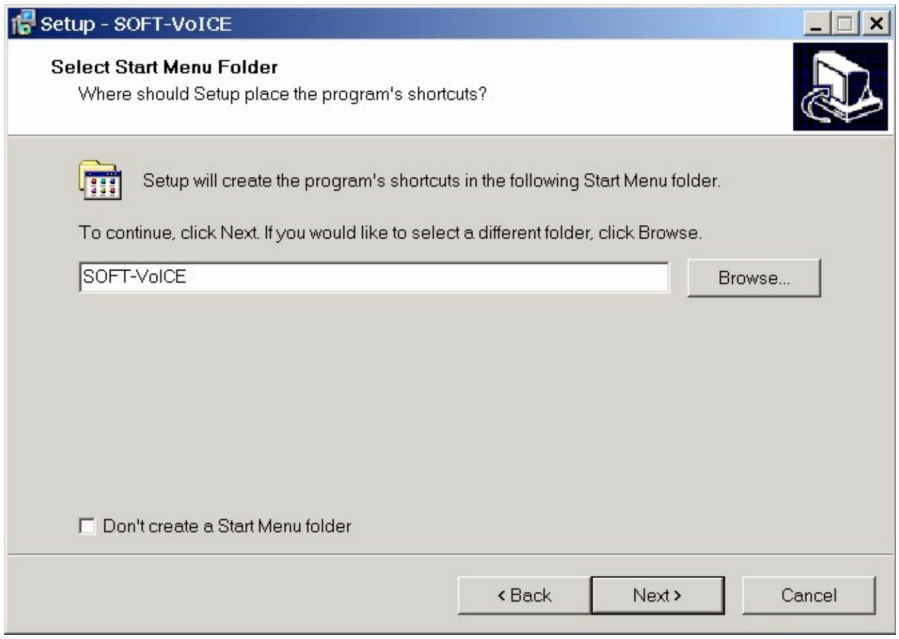


Figure 5-5: SOFT-VoICE Shortcuts

Enter the name of the folder to be used for SOFT-VoICE start menu or use the default (recommended). If a SOFT-VoICE start menu folder is not required click on the checkbox at the bottom of the dialogue. Click on the 'Next' button to continue.

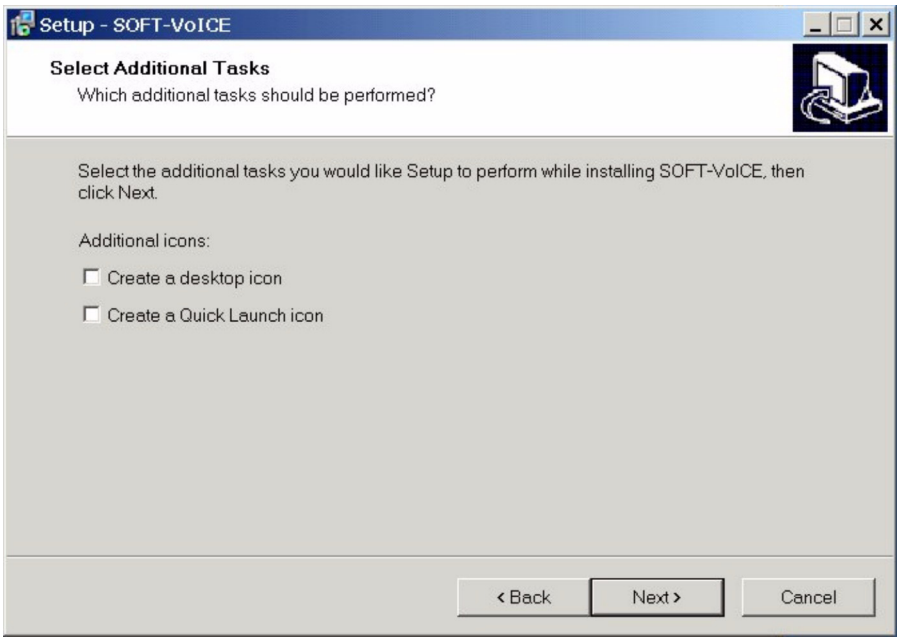


Figure 5-6: Create Icon Dialogue

Click on the checkboxes to specify whether Desktop and/or Quick Launch icons are required to allow SOFT-VoICE to be started and click on the ‘Next’ button to continue with the installation.

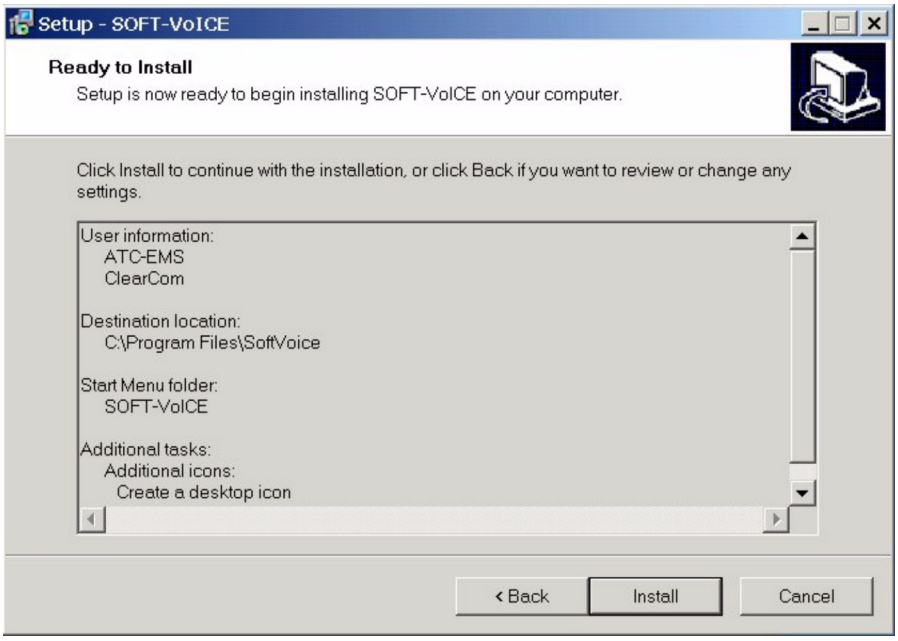


Figure 5-7: Installer Options

The final stage before installing the software is to display the options selected for review. If the user wishes to change any of the options selected clicking on the ‘Back’ button allows the user to step back through the options dialogue to change the options. To proceed with the installation click on the ‘Install’ button.

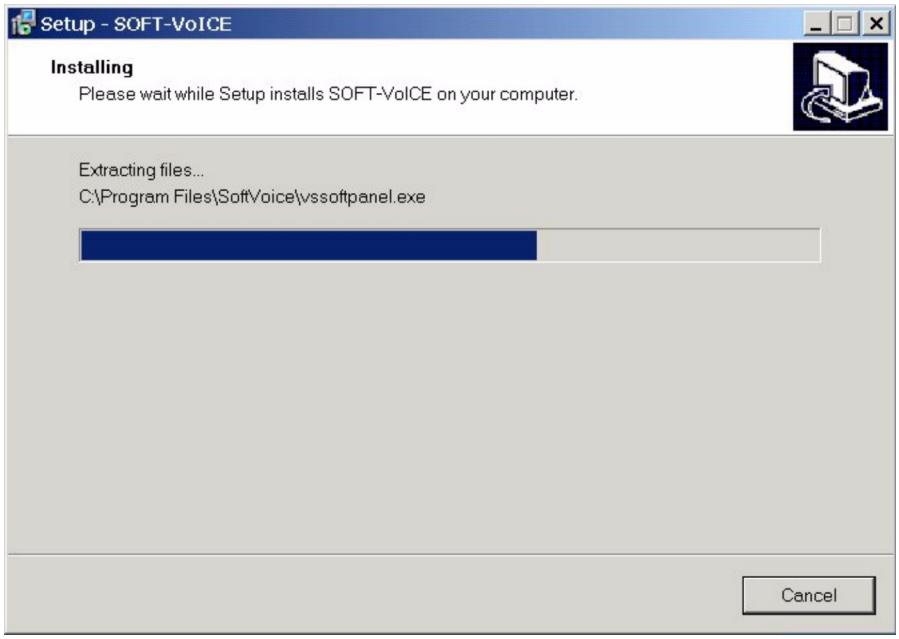


Figure 5-8: SOFT-VoICE Installation

SOFT-VoICE will be installed on the PC and configured as required. When the software installation and configuration is complete the final screen is displayed with the option to launch SOFT-VoICE when the installer exits.

Figure 5-9: Installation Completion Screen

Click on the Launch checkbox to cancel launching SOFT-VoICE if it is not required to be started when the installer exists. The default is to start SOFT-VoICE when the installer exits.

Click on the 'Finish' button to complete installation.

When run for the first time, SOFT-VoICE will ask for a **Playback device** (audio from matrix) and a **Recording device** (audio to matrix).

If a Windows firewall is enabled (for example in Vista) it will request permission for SOFT-VoICE to access the network.

Figure 5-10: Vista Firewall Warning for SOFT-VoICE

Click on the 'Unblock' button to enable access for SOFT-VoICE. The level of access may be refined using the firewall controls.

Before establishing a connection to your VoICE server you will need to:

- Enter information into the **General Configuration** dialogue by choosing **General/Network** from the Options menu. In the Connection section enter your VoICE server's IP address in the **Server** box and choose your allocated VoICE channel from the **Port** drop-down list.
- Ensure that the **Sampling Rate** in the **Audio Configuration** dialogue is set to match the **Sampling Rate** in the VoICE server and choose your desired codec and bit rate by choosing **Codecs** from the **Options** menu.
- Connect the allocated VoICE channel to a suitably configured Eclipse MVX port.

To connect SOFT-VoICE choose **Connect** from the **File** menu.

CONFIGURATION

GENERAL CONFIGURATION

The general configuration dialogue is accessed via the sequence:

Menu->Option->General/Network

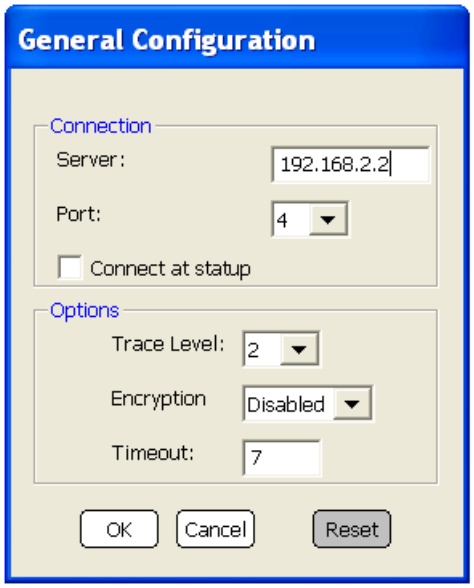


Figure 5-11: General Configuration Dialogue

Connection

Server: The server that SOFT-VoICE connects to. To specify a port other than the default, use the following format: xxx.xxx.xxx.xxx:port eg: 172.16.86.100:5000. DNS addressing is supported.

Port: The port on the VoICE server to connect to.

Connect at startup: SOFT-VoICE can connect automatically to the parameter settings configured in this page when the application starts.

Options:

Trace Level: The level of the log message (higher level will increase the number of log messages in the log files.). The value should be set to 1 for normal operation. It may be useful when troubleshooting with technical support to increase the value to a higher number.

Encryption: Enables or disables data encryption. The encryption algorithm is AES with a 128 bit encryption key.

Timeout: The duration in seconds required before SOFT-VoICE assumes that the connection to the server has been lost.

Note: After changing these parameters SOFT-VoICE will disconnect from the VoICE server and reconnect to activate the changes.

DEVICE CONFIGURATION

The general configuration dialogue is accessed via the sequence:

Menu->Option->Devices

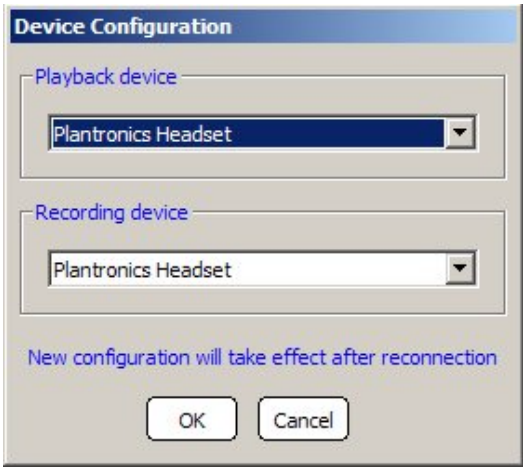


Figure 5-12: Device Configuration Dialogue

Playback Device: List of playback devices found on your computer; you need to select the device to output audio from the matrix.

Recording Device: List of recording devices found on your computer; you need to select the device to use to input audio to the matrix e.g. a headset microphone.

Note: After changing these parameters SOFT-VoICE will disconnect from the VoICE server and reconnect to activate the changes.

Codec Configuration

The Codec configuration dialogue is accessed via the sequence:

Menu->Option->Codecs

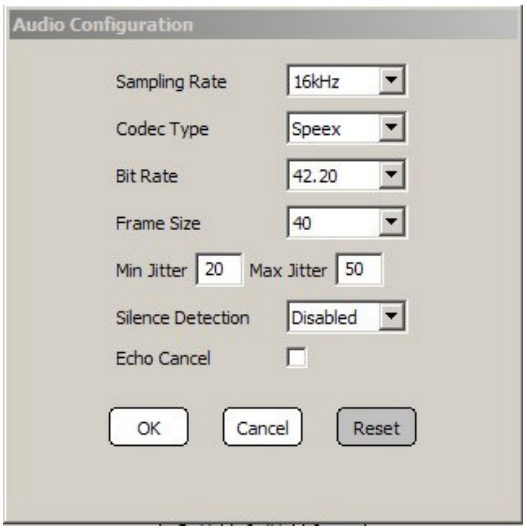


Figure 5-13: Codec Configuration Dialogue

Sampling rate: This configuration ***must*** be identical to the chosen sampling rate of the server. The available frequencies are 8kHz, 16kHz and 32kHz. A larger sampling frequency will provide better audio quality at the cost of more bandwidth.

> ***Note***
>
> ***No warning will be given if the sampling rate is not the same as that of the server***

Codec Type: The type of CODEC to be used for audio processing. The type of CODEC selected will depend on such factors as the required audio quality and the bandwidth available on the network connection.

1. 8kHz sampling rate
    a. Speex
2. 16kHz sampling rate
    a. G.722
    b. Speex
    c. Linear

3. 32 kHz Sampling rate

    a. Speex

    b. Linear

The G.722 CODECs are low latency algorithms with only one available bitrate for each which will function optimally in a contained LAN with little or no packet loss.

Speex is more latent but provides a large variety of bitrates for each of the sampling rate.

Linear CODEC is simply a PCM pass through with no encoding. It is the optimal quality but uses a large amount of bandwidth.

Bitrate: The theoretical output bitrate of the codec chosen in kilobits per seconds. This does not take into consideration the number of milliseconds per IP packets as well as the IP/UDP overhead.

Frame Size: Number of millisecond of per IP/UDP packet. The larger the frame, the lower the bandwidth. Note that the frame size is also the minimum initial latency.

Min Jitter: Amount of minimum buffer time.

Max Jitter: Amount of maximum buffer time. Reducing the maximum jitter buffer size will reduce overall delay but might cause audio packet loss.

Silence Detection: Enables suppression of silence in transmit mode. This option will significantly reduce the bandwidth usage.

Echo Cancel: If checked, acoustic echo cancellation will be enabled.

Note: After changing these parameters SOFT-VoICE will disconnect from the VoICE server and reconnect to activate the changes.

ESTABLISHING A CONNECTION

To establish a connection, first setup the server and port in the General Network Panel. Then connect to the server using the ‘File’ menu and selecting ‘Connect’.

Figure 5-14: Select Connect Dialogue

The connection screen will be displayed whilst a connection is being made.

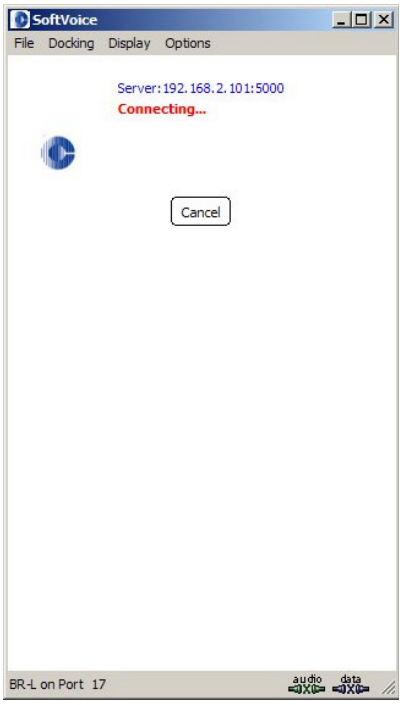


Figure 5-15: System Connecting Display

When a connection is established the panel emulation screen will be displayed ready for use.

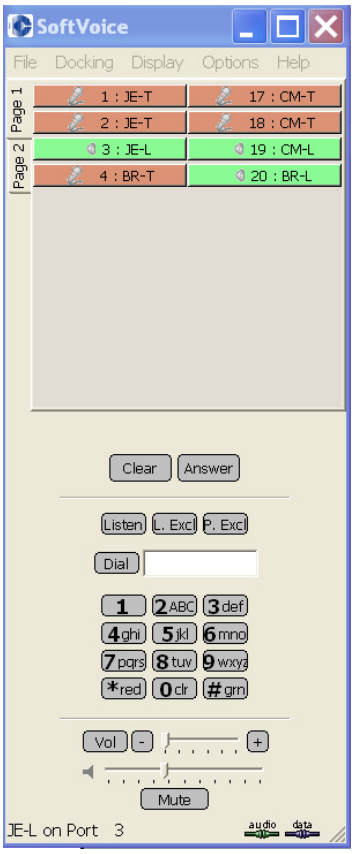


Figure 5-16: Panel Emulation Display

USER INTERFACE

The User Interface consists of four parts:

1. Talk and Listen Keys:
   - The number of rows and columns of talk and listen keys are defined in the *configui.ini* file (column=2).
2. DialPad or KeyPad Panel

3. Volume Control Panel

4. Status Bar:
   - Left : Name and connection port of the SOFT-VoICE.
   - Right: Icons showing the status of the connection.

Note: Please refer to the ECS manual (part number 810299) for information on configuring I-Station keys in ECS.

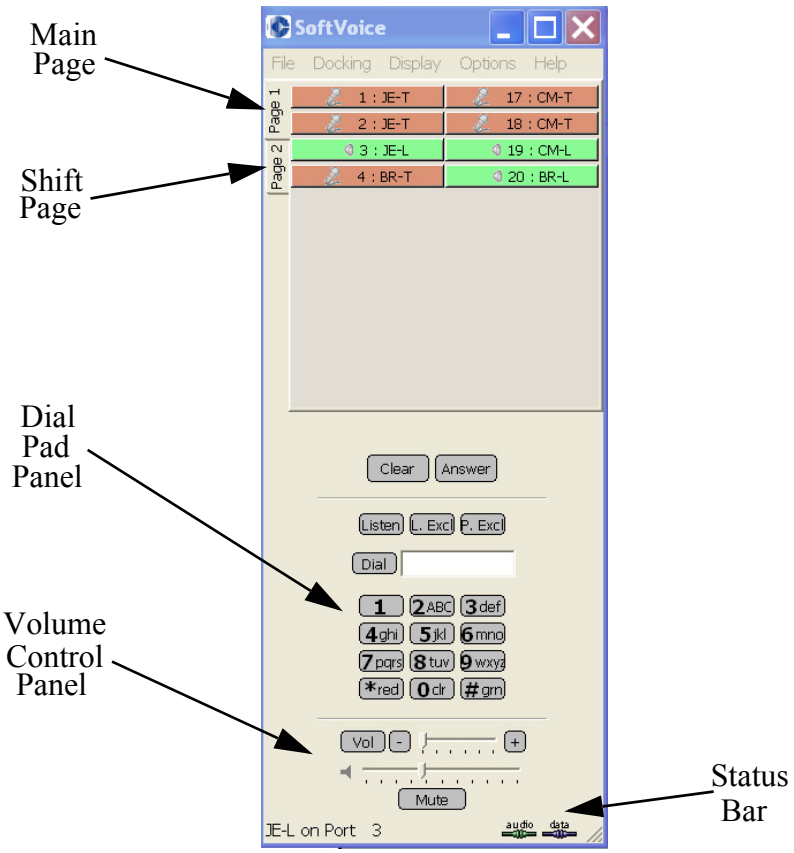


Figure 5-17: User Interface

FUNCTIONALITY

TALK OR LISTEN

Left click on a button will change the status of the key:

- Talk button pressed (Red) = Talk On

- Talk button released (Light Red) = Talk Off

- Listen button pressed (Green) = Listen On

- Listen button released (Light Green) = Listen Off

CHANGE VOLUME FOR A LISTEN KEY

To change the volume for a listen key click on the “Vol” button to activate the individual level control. All the keys that can be modified will then start to flash. Click on the flashing key for which the volume is to be modified to select it and modify the volume using the slider bar in the volume pane.

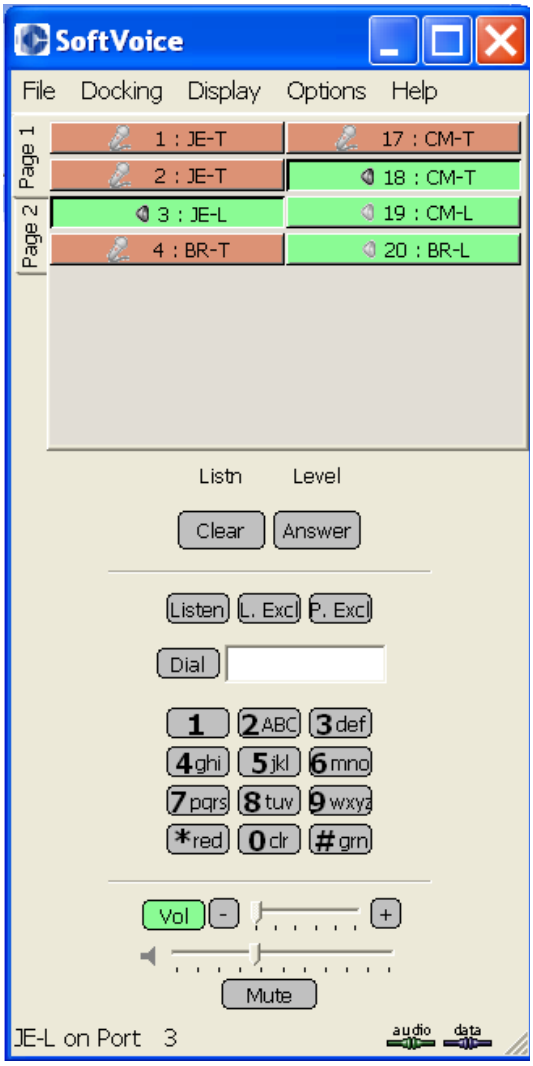


Figure 5-18: Soft Listen Keys

CHANGE MAIN LISTEN VOLUME (GENERAL)

1. If this panel is not visible, select: Menu->Display->Show Vol. Control.
2. Use the slider bar from the Volume Control Panel (bottom panel) to adjust the audio volume.
3. Activating the ‘Mute’ button will mute the microphone input.

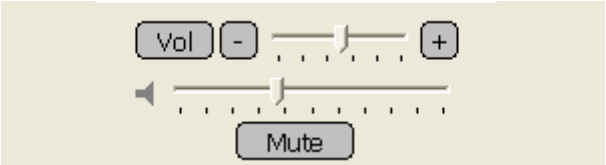


Figure 5-19: Volume Control

DIAL PAD

1. If this Dial Pad panel is not visible, select: Menu->Display->Show Keypad.
2. Press Button 'Dial' to activate the dial pad, button should turn red, and 'Dial' appears above 'Clear' button :

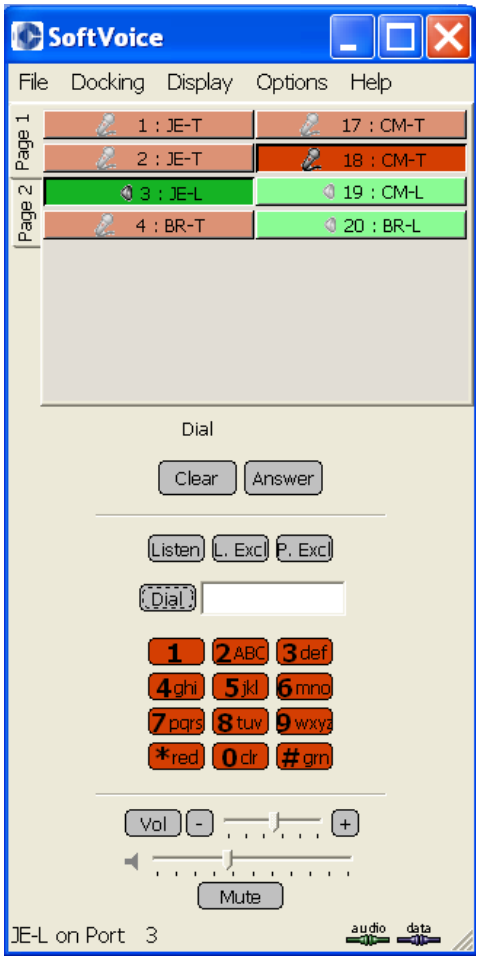


Figure 5-20: Dial Pad Use

3. Dial pad buttons are now active.
4. Press Clear button to deactivate the Dial Pad.
5. Dial Pad is deactivated automatically if no key pressed for 5 sec.

There are three special function keys on the dial pad panel which emulate functions found on the i-Station panels; Listen, L. Excl and P. Excl. The Listen button emulates the “Listen” key on the i-Station keypad, L. Excl emulates the “Local Exclusive” advanced function of the i-Station (keypad 2) and P. Excl emulates the “Page Override” advanced function (keypad 3).

For details on these functions on an i-Station please refer to the i-Series instruction manual part number 810305Z.

Listen Button

The LISTEN key has three functions:

• Activates the “monitor mode” of a “talk-with-listen” key

• Sends call signals

• Releases remote telephone lines

Activating the “Monitor Mode” of a Talk-with-Listen Key

The SoftVoICE panel “monitor mode” allows you to momentarily change the status of a key from listen-only to talk-with-listen. By clicking the listen-only key, you momentarily change it to a talk-with-listen key.

To activate the “monitor mode” of a talk-with-listen key

1. Click the LISTEN button for less than one second.
2. The listen button turns green to indicate it is active.
3. For each key assigned as a talk-with-listen the Talk section turns from light red to light green to indicate that its “monitor mode” is available for activation
4. Click on a “monitor mode” key activate it. The key will turn dark green to show it is active.
5. To talk to the source, press and hold the key. The key will turn dark to indicate that a talk-with-listen call is active. When you release the key, it reverts back to its active listen-only mode (dark green). The talk-with-listen function cannot be latched; it is only active while you press the key.

To cancel the key’s monitor mode and revert back to the talk-with-listen mode

1. Click on the LISTEN button. It will turn green.
2. Click on the desired active listen-only key (dark green). The formerly active listen-only key becomes light red to indicate that it has reverted back to its non-active talk-with-listen mode. If you press the key to talk, it glows bright red.

Note: You must click on the LISTEN button for each key you activate in “monitor mode”.

Sending Call Signals

A call signal is an electronic signal that is sent from one panel or interface to another to get a panel operator’s attention. It can be used for a variety of more technical purposes as well, such as to activate a relay to open a door, set off an alarm, or activate a public address (PA) system.

In order to use this facility the destination panel's Call Signal Tone must be enabled. This is done in ECS via the Setup Matrix Hardware facility using “Advanced Settings” and “Audible Alerts” for the

destination panel or panels. The “Call Signal Tone” option must be set to “True”.

To send a call signal

1. Click and hold the LISTEN button for between 1 and 5 seconds. The LISTEN button turns red to indicate that you have entered the “call-signal send” mode.
2. Press the key of the destination that you want to send the call signal to. A call signal of three loud beeps is sent to a destination each time that you press the destination’s key.
3. To send a call signal to a new destination, press the new destination’s key. A call signal is sent to the new destination each time you press that destination’s key.
4. To exit “call-signal send” mode, click on the LISTEN button.
   - You can also exit “call-signal send” mode by simply not pressing a display key for five seconds. The mode will automatically time-out.
   - When you exit “call-signal send” mode, the LISTEN button changes from red back to grey.

You can send a call signal to any destination with a designated key on your panel. If more than one destination is assigned to a key, each destination will receive the call signal. If the destination is a party line, then every panel listening on the party line will receive the call signal.

Note: The call signal is sent at the page-override volume level, which is programmable in the Eclipse Configuration System. For more information, see the Eclipse Configuration System Manual.

Releasing Remote Telephone Lines

To release a telephone interface that has been left off-hook

1. Enable “remote telephone release” for that panel in the Eclipse Configuration System.
   Often this feature will already be set up in the configuration system software. For more information, refer to the *Eclipse Configuration System Manual*.
2. Click on the LISTEN button. The LISTEN button turns green.
3. Click on the desired telephone interface key.
   The telephone interface will hang up. All audio paths to and from the telephone interface will be deactivated.
4. Click on the LISTEN button again to exit. It will return to inactive mode.

L. Excl Button - Local Exclusive

When the “local exclusive” feature is activated by clicking on the “L. Excl” key it will turn green to indicate the feature is active and “Local Excl” is displayed above the “Clear” and “Answer” keys.

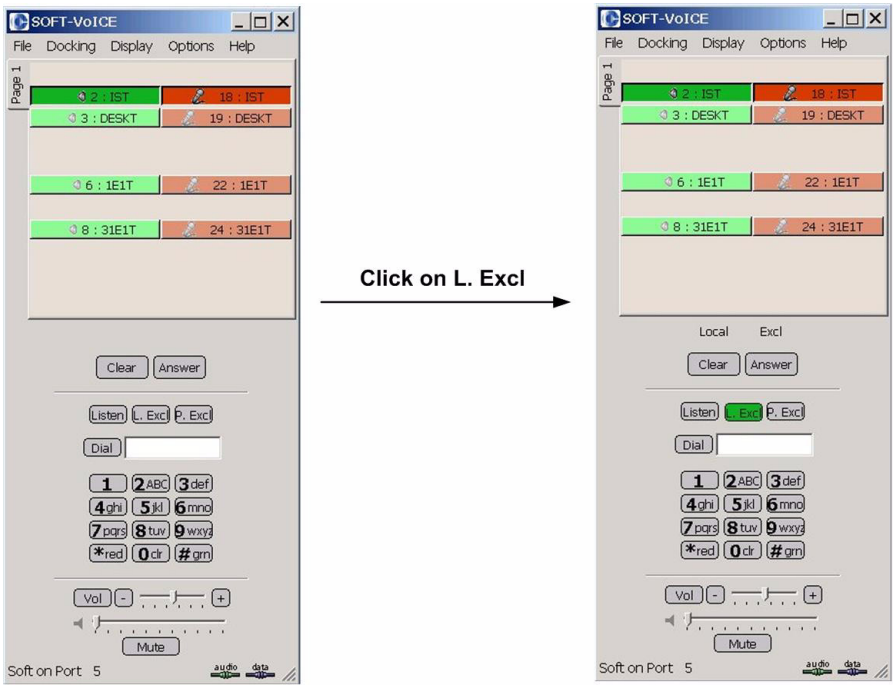


Figure 5-21: Selecting Local Exclusive

If a Talk or Listen key is then activated all previously latched keys on your Soft VoICE panel deactivate temporarily (they return to the unselected color) while you either talk to one destination or listen to one source.

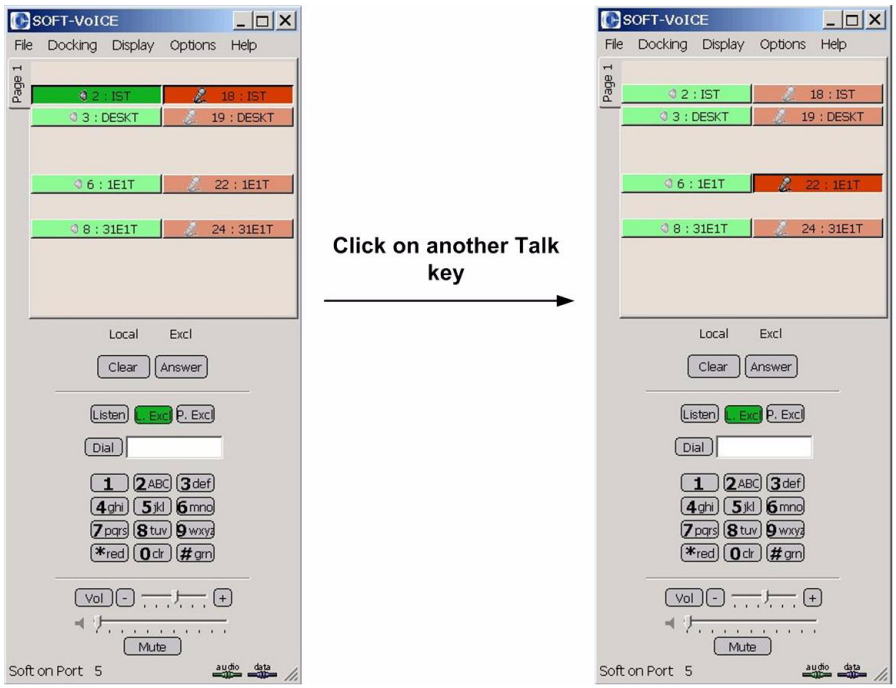


Figure 5-22: Selecting a Talk in Local Exclusive Mode

When the Talk or Listen key selecting in local exclusive mode is released the previously latched keys return to their latched condition and the L. Excl button returns to the inactive color. If no Talk or Listen key is selected within five seconds of clicking on the local exclusive key it will time out and return to the inactive state.

Note that the “local exclusive” feature is only active when Soft-Voice is connected and online.

P. Excl Button - Local Page Override

The “local page override” feature allows you to talk to one or more destinations regardless of the on/off or volume settings at each destination. The feature literally “overrides” the current on/off and volume settings at the destination.

Click the “P. Excl” button to select this feature and “Local Page” will be displayed above the Clear and Answer buttons and the P. Excl button will turn green. If no Talk or Listen key is selected within five seconds of clicking on the page override key it will time out and return to the inactive state.

If any Talk key is pressed when page override is active the current volume settings at all of the destinations the key talks to will be overridden by the page override volume set for that destination under ECS.

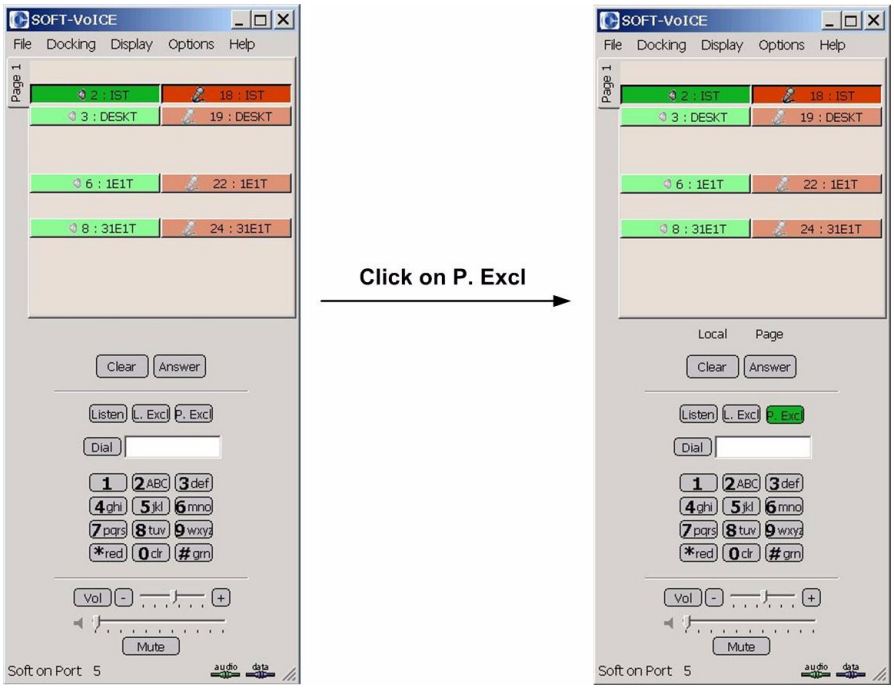


Figure 5-23: Activating Page Override

Selecting any Talk key (including keys already latched) by clicking on it will then override the volume settings at the key destination.

When the Talk key is released the page override will be deactivated and the P. Excl button will return to its normal inactive color.

DOCKING

The main application frame can be docked on the desktop much like the windows task bar. To do so, use the application menu "Docking" and select the desired docking position.

Selecting “Right docking” from the menu will dock the SoftVoICE application frame on the right of the display; selecting “Left docking” will dock the SoftVoICE application on the right of the display.

Selecting the “UnDock” option allows the application to be dragged to any part of the display using the mouse.

USER INTERFACE CONFIGURATION

CUSTOMISE COLOR AND LAYOUT

The User Interface can be customised by editing the **‘configui.ini’** file:

General Section

GENERAL SECTION	
frame.width	frame width
frame.height	frame height
frame.posx	X position
frame.posy	Y position
docking	Docking of the app: can be 'Disabled' , 'Right' , 'Left'

Note: Frame position and size is saved automatically when exiting the Application.

Colors

The following options are available to modify items color. Color values are set using R,G,B values.

- Talk/Listen ON background color, default value: 212,62,2:

Color.Background.TL_ON=212,62,2

- Talk/Listen OFF background color, default value: 220,146,117

Color.Background.TL_OFF=220,146,117

- Listen ON background color, default value: 21,179,36

Color.Background.Listen_ON=21,179,36

- Listen OFF background color, default value: 138,251,148

Color.Background.Listen_OFF=138,251,148

Button Width

The button width can be modified using values between 5 and 500. The default value is 20 which gives the buttons' minimum width. It is also used to calculate the docking width.

button.width=120

Table

Number of columns of keys to display the conferences. Valid between 1 and 100, default value is 2.

column=2

EXAMPLE CONFIGUI.INI FILE

/*****************************/

/* SoftVoice Config */

/*****************************/

[General]

#docking can take the value: Right, Left or Disabled

docking=Disabled

/*************** Color *****************************/

#Talk/Listen ON background color, default value: 212,62,2

Color.Background.TL_ON=212,62,2

#Talk/Listen OFF background color, default value: 220,146,117

Color.Background.TL_OFF=220,146,117

#Listen ON background color, default value: 21,179,36

Color.Background.Listen_ON=21,179,36

#Listen OFF background color, default value: 138,251,148

```
Color.Background.Listen_OFF=138,251,148

#Talk/Listen ON foreground color, default value: 0,0,0
Color.Foreground.TL_ON = 0,0,0

#Talk/Listen OFF foreground color, default value: 0,0,0
Color.Foreground.TL_OFF = 0,0,0

#Listen ON foreground color, default value: 0,0,0
Color.Foreground.Listen_ON = 0,0,0

#Listen OFF foreground color, default value: 0,0,0
Color.Foreground.Listen_OFF = 0,0,0

/******************  Font  ******************************/

#The family font available for now are:
# default , decorative , roman,script,swiss,modern,teletype
font.family = roman

#font point size, default = 8
font.pointsize =8

#font weight for an "OFF" item, can be:
# normal, light or bold
font.weight.off=normal

#font weight for an "ON" item, can be:
# normal , light or bold
font.weight.on=bold
frame.posx=450
frame.posy=88
```

[Serie3]

/********** Buttons **********/

#button height, valid between 5 and 500. Default value: 20

button.height=20

#button width, valid between 5 and 500. Default value: 120

#used to calculate the docking width

button.width=120

#Horizontal button border (add a right/left space), valid between 0 and 100. Default Value: 1

button.border1=1

#Vertical button border (add a top/bottom space). Valid between 0 and 100. Default value: 1

button.border2=1

/********** Table **********/

#number of columns.

#Valid between 1 and 100

#default value: 2

column=2

/********** button order**********/

order=1;17;2;18;3;19;4;20;5;21;6;22;7;23;8;24;9;25;10;26;11;27;12;28;13;29;14;30;15;31

LABEL TRANSCRIPTION FILE

The transcription file *Labelmap.ini* can be used to set the names of conferences as required on the keys.

Under the section General

[General]

Key labels can be replaced by adding a line corresponding to a key label in ECS and setting it to a new name. Eg: to replace 'CH-T' with 'Studio Talk', and 'CH-L' with 'Studio Listen' add these entry to the labelmap.ini file in the section [General]

[General]

CH-T=Studio Talk

CH-L=Studio Listen

6 TECHNICAL SPECIFICATION

VOICE PRODUCT FEATURES AND SPECIFICATIONS

HARDWARE DESCRIPTION

Back Panel

• A/C Power

LAN1

This port connects to the IP network (e.g. to a router, switch, etc.).

• LAN2

This is a configuration port.

• USB

This port connects USB devices such as external CD/DVD-ROM used for installation and maintenance.

• To Matrix 1-4

These ports connect to a Matrix.

• To Panel 1-4

These ports connect to Panels.

Note that for each pair of ports 1-4, either the To Matrix or the To Panel port and NEVER BOTH should be used depending on whether it is connecting to a matrix or a panel.

Front Panel

• Power Button

This button is used to power down and power up the VoICE.

- To turn the power OFF, press and hold the power button for 5 seconds.
- To turn the power ON, press the power button.

• Power LED

This LED turns on GREEN when the power is ON. The LED turns OFF when the power is OFF

• Port Status LEDs 1-4

These 4 LEDs each indicate the status of the related port. The table of the LED behavior and the related status is given below:

Port LED Behavior

LED Behavior	Status
OFF	The port is not enabled
Flashing GREEN	The port is enabled but not connected
Steady GREEN	The port is connected

SOFT-VOICE PRODUCT FEATURES AND SPECIFICATIONS

PC REQUIREMENTS

- Pentium IV 2.4GHz/Athlon 2400+ or better
- 256 Mb RAM or better (depending on operating system)
- 25Mb hard disk space
- Windows 2000 or Windows XP or Windows Vista
- 1 Sound card
- Headset connector
- CD-ROM/DVD-ROM drive
- Ethernet Port
- Color monitor

SOFTWARE DESCRIPTION

CODECs supported

- G.711
- G.722
- Speex 16k
- Speex 32K
- Linear PCM
- Sample Rates supported
- 8, 16 and 32KHz.

Bit rates supported

- Speex 8Khz - 2.15, 3.95, 5.95, 8.00, 11.00, 15.00, 18.20 or 24.60 Kbps.
- Speex 16Khz - 3.95, 5.65, 7.75, 9.80, 12.80, 16.80, 20.60, 23.80, 27.80, 34.20, 42.20 Kbps.
- Speex 32Khz - 3.95, 7.45, 9.55, 11.60, 14.60, 18.60, 22.40, 25.60, 29.60, 36.00, 44.00 Kbps.
- G711, G722 is 64 Kbps.
- Linear 16Khz is 256 Kbps .
- Linear 32Khz is 512 Kbps.

Variable IP packet frame size supported.

DNS Server supported

AES 128 bit encryption supported

QoS Support (ToS / DSCP)

Jitter buffer size

- 10 - 1000ms

Echo Tail reduction

- 256ms

Noise Filtering

Silence Suppression

LIMITED WARRANTY

This document details the Clear-Com Standard Limited Warranty for all new products for sale within all regions with the exception of Military, Aerospace, and Government (MAG).

EXCEPT AS SET FORTH HEREIN ("LIMITED WARRANTY"), CLEAR-COM MAKES NO OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, NONINFRINGEMENT OF THIRD PARTY RIGHTS, OR FITNESS FOR A PARTICULAR PURPOSE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED.

1. **Standard Limited Warranty.** Clear-Com warrants its products, including supplied accessories, against defects in material or workmanship for the time periods as set forth below provided it was purchased from an authorized Clear-Com dealer or distributor.

   a) Pursuant to this Limited Warranty, Clear-Com will, at its option:

      i) repair the product using new or refurbished parts, or;

      ii) replace the product with a new or refurbished product.

   b) Remedies: In the event of a defect, the rights detailed in 1 (a) are your exclusive remedies. For purposes of this Limited Warranty, "refurbished" means a product or part that has been returned to its original specifications.

   c) Standard Warranty Period (by Product):

      i) All Clear-Com brand systems and products, including belt packs, have a Limited Warranty of two years, with the exception of;

         (1) Cables, accessories, components & consumable items have a Limited Warranty of 90 days.

         (2) Any Clear-Com product that has been classified as obsolete at the time of sale has a Limited Warranty of 90 days from sales and will be replaced with the same product or a sales credit will be issued, at the sole discretion of Clear-Com.

         (3) Headsets, handsets, microphones, and associated spare parts, as well as UHF wireless IFB products, have a Limited Warranty of one year.

         (4) UHF WBS Analog wireless intercom systems have a Limited Warranty of three years.

(5) All software products, including Concert (Client and Server), ECS, Production Maestro and Logic Maestro are warranted for one year and shall substantially conform to published specifications. The media on which the Software is furnished is warranted to be free of defects in material and workmanship (under normal use) for a period of one year.

(6) Any Clear-Com products that are listed within the last time buy period have the same Limited Warranty for their type 1.i 1 - 1.i.5 as above.

d) Any Clear-Com product that is repaired or supplied as a replacement under the terms of this Limited Warranty shall inherit the remaining warranty period from the original product.

e) Standard Warranty Period Start Date

i) Dealer / Distributor Sales: In view of Dealer or Distributor stocking practices, the Standard Warranty Period for products sold through Dealers or Distributors will commence from the Clear-Com invoice date and will include an automatic extension of three months. Any valid warranty claim within the Standard Warranty Period as determined by the Clear-Com invoice date will be covered without further supporting evidence. All warranty claims after this date must be supported by the Customer's proof of purchase that demonstrates the product is still within the Standard Warranty Period (as detailed in Section 1.c.i above, plus the automatic three month extension) from their purchase date.

ii) Direct Sales: The Standard Warranty Period will commence from the date the product was shipped from Clear-Com to the Customer. The Standard Warranty Period start date for contracts that include commissioning will be the date of the Site Acceptance Test (SAT) or one month from conclusion of the commissioning project, whichever is earlier.

f) Invalidation of Warranty

i) This Limited Warranty shall be invalidated if the product's outer case has been opened and internal modifications have been made or damage has occurred, or upon the occurrence of other damage or failure not attributable to normal wear and tear. Authorized modifications with Clear-Com's express written permission will not invalidate the warranty.

g) Software Updates

i) Software Updates are released periodically to correct discovered program bugs. During the Warranty Period, software updates are available to Customers free of charge.

h) Software Upgrades

i) Software Upgrades include new Features and/or Functional Enhancements and are not included as part of the Standard Warranty but may be purchased at the published rates.

ii) Note: In the absence of a Software Update containing a program correction and no available workaround to mitigate the problem, at the discretion of Service, Sales, Engineering, or Product Management, the Customer may be provided a Software Upgrade under warranty.

2. **Exclusions.** Services do not cover damage or failure caused by any occurrence beyond Clear-Com's reasonable control, including without limitation acts of God, fire, flooding, earthquake, lightning, failure of electric power or air conditioning, neglect, misuse, improper operation, war, government regulations, supply shortages, riots, sabotage, terrorism, unauthorized modifications or repair, strikes, labor disputes or any product failure that Clear-Com determines is not a result of failure in the Services provided by Clear-Com. Further Services excluded from this Agreement include: services required due to errors or omissions in Customer purchase orders; installation or maintenance of wiring, circuits, electrical conduits or devices external to the products; replacement or reconditioning of products which, in Clear-Com's opinion cannot be reliably maintained or properly serviced due to excessive wear or deterioration; Customer's failure to maintain the installation site in accordance with the environmental specifications of the products; or service on products removed from the location originally specified by Customer and/or reinstalled without the prior written approval of Clear-Com. Customer will pay Clear-Com's then current published charges to restore such Covered Products to a condition eligible for further service under this Agreement. Clear-Com shall be excused from and shall not be liable for any failure or delay in performance under this Agreement due to the foregoing or any causes beyond its reasonable control.

3. **Limitation of Liability. IN NO EVENT WILL CLEAR-COM BE LIABLE UNDER THIS AGREEMENT FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOST PROFITS), REGARDLESS OF THE FORM OF ACTION, EVEN IF ADVISED IN ADVANCE OF THE POSSIBILITY OF SUCH DAMAGES.**

4. **Assignment.** Neither party may assign this Agreement or any portion thereof without the prior written consent of the other, except in the event of a merger, sale of all or substantially all of the assets or other corporate reorganization.

5. **Ownership of replaced parts or product.** All replaced parts or products become the property of Clear-Com.

6. **Entire Agreement.** This Agreement constitutes the entire agreement between the parties with respect to the subject matter hereof, and supersedes all prior or contemporaneous proposals, oral or written, and all other communications between them relating to the subject matter of this Agreement.