

# LA NETWORK MANAGER

## REMOTE CONTROL SOFTWARE

### USER MANUAL

### VERSION 1.2.0.102C





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## 2 INTRODUCTION

### 2.1 Welcome to L-ACOUSTICS®

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Thank you for purchasing an L-ACOUSTICS® system. Each system can be remote controlled by using **L-ACOUSTICS® LA NETWORK MANAGER Software and the proprietary L-NET Network.**

This manual contains essential information on installing the L-NET Network and operating LA NETWORK MANAGER Software. Read this manual carefully in order to become familiar with these procedures.

**As part of a continuous evolution of techniques and standards, L-ACOUSTICS® reserves the right to change the specifications of the product and the content of this manual without prior notice.**

Should software not work properly or if information is needed, please contact an approved L-ACOUSTICS® distributor. The address of the nearest distributor is available on the L-ACOUSTICS® web site.

### 2.2 Symbol description

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The following symbols are employed all along this bulletin:

	The <b>WARNING</b> symbol indicates a potential risk of physical harm to the user or people within close proximity to the product. In addition, the product may also be damaged.
--	---

	The <b>CAUTION</b> symbol notifies the user about information to prevent possible product damage.
---	---

	The <b>IMPORTANT</b> symbol notifies an important recommendation of use.
---	--



The **ARROW** symbol notifies a single instruction to apply (a sequence of several instructions will be notified by numbers).

[2.2] A bracketed number refers to a section of this bulletin.  
For example, [2.2] stands for the **Symbol description** section.

### 2.3 Web links

LA NETWORK MANAGER Software is freeware. The **LA NETWORK MANAGER Software pack** is downloadable from the L-ACOUSTICS® web site.

Please check the L-ACOUSTICS® web site on a regular basis for latest document and software application updates. Table I provides links for all downloadable items mentioned in this manual.

	<p>ALWAYS refer to the latest document version.</p> <p>ALWAYS use the latest software application version.</p>
---	--

**Table I: Links to documents and software applications**

<b>LA NETWORK MANAGER User manual</b>	<a href="http://www.l-acoustics.com/la-network-manager">www.l-acoustics.com/la-network-manager</a> (USER MANUAL)
<b>LA NETWORK MANAGER Software pack</b>	<a href="http://www.l-acoustics.com/la-network-manager">www.l-acoustics.com/la-network-manager</a> (SOFTWARE DOWNLOAD)
<b>LA4 User manual</b>	<a href="http://www.l-acoustics.com/la4">www.l-acoustics.com/la4</a> (USER MANUAL)
<b>LA8 User manual</b>	<a href="http://www.l-acoustics.com/la8">www.l-acoustics.com/la8</a> (USER MANUAL)
<b>LA4 FIRMWARE Pack</b>	<a href="http://www.l-acoustics.com/la4">www.l-acoustics.com/la4</a> (LA4 FIRMWARE)
<b>LA8 FIRMWARE Pack</b>	<a href="http://www.l-acoustics.com/la8">www.l-acoustics.com/la8</a> (LA8 FIRMWARE)
<b>LA4 PRESET LIBRARY Pack</b>	<a href="http://www.l-acoustics.com/la4">www.l-acoustics.com/la4</a> (LA4 PRESET LIBRARY)
<b>LA8 PRESET LIBRARY Pack</b>	<a href="http://www.l-acoustics.com/la8">www.l-acoustics.com/la8</a> (LA8 PRESET LIBRARY)
<b>LA-AES3 User manual</b>	<a href="http://www.l-acoustics.com/la-aes3">www.l-acoustics.com/la-aes3</a> (USER MANUAL)
<b>LA AES3 MONITOR Technical bulletin</b>	<a href="http://www.l-acoustics.com/la-aes3">www.l-acoustics.com/la-aes3</a> (REMOTE CONTROL)
<b>ARRAY MORPHING White paper</b>	<a href="http://www.l-acoustics.com/download">www.l-acoustics.com/download</a> (Technical publications)

## 3 SYSTEM APPROACH

From a **computer** fitted with a Windows® operating system, **LA NETWORK MANAGER Software** provides network control and monitoring of up to 253 **LA4 and/or LA8 Amplified Controllers** within the **L-NET Network**.

The **LA4 and LA8 Amplified controllers** (called **units**) are at the heart of the L-ACOUSTICS® integrated system approach. They offer cutting edge loudspeaker amplification, DSP, L-NET Network control, and comprehensive system protection in single ergonomic packages.

The proprietary **L-NET Network** allows easily configuring multiple Ethernet network topologies using CAT5e U/FTP cables (or higher categories) and standard RJ45 connectors. The use of a universal Ethernet switch is recommended for specific network topologies.

The system approach developed by L-ACOUSTICS® consists of the elements needed to fully optimize the possible configurations. The main components of the L-ACOUSTICS® systems are the following (see also Figure 1):

- |   |  |
|---|--|
| <b>8XT, 8XTi, 12XT, 12XTi, 115XT HiQ</b>  | ⇒ Coaxial enclosures   |
| <b>KIVA, KARA®, KARAi, dV-DOSC, ARCS®</b> | ⇒ 2-way WST® systems   |
| <b>KUDO®, V-DOSC®, KI</b>                 | ⇒ 3-way WST® systems   |
| <b>KILO, dV-SUB, KI-SB</b>                | ⇒ Subwoofer extensions for KIVA, dV-DOSC, and KI, respectively |
| <b>SB18, SB18i, SB28</b>                  | ⇒ Subwoofer enclosures   |
| <b>LA4, LA8</b>                           | ⇒ Amplified controllers  |
| <b>LA-RAK</b>                             | ⇒ Touring rack containing three LA8 amplified controllers      |
| <b>LA NETWORK MANAGER</b>                 | ⇒ Remote control software                                      |



**LA NETWORK MANAGER**



**LA4**



**LA8**



**LA-RAK**



**8XT**

**8XTi**



**12XT**

**12XTi**



**115XT HiQ**



**KIVA**



**ARCS**



**KARA®**



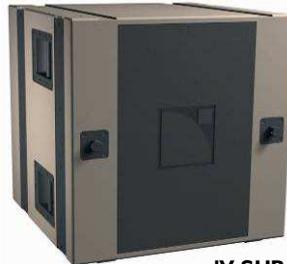
**KILO**



**KARAI**



**dV-DOSC**



**dV-SUB**



**SB18**



**KUDO**



**K1**



**SB18i**



**V-DOSC**



**KI-SB**



**SB28**

**Figure 1: L-ACOUSTICS® loudspeaker systems and driving components**

## 4 LA NETWORK MANAGER SOFTWARE

**LA NETWORK MANAGER Software** provides network control and monitoring for both LA4 and LA8 amplified controllers from a **computer** fitted with a Windows® operating system. The multiple window display (Figure 2) gives an overall visualization of the **L-NET Network** status, **units, groups of units**, and all information related to the control and monitoring of the **units**.

Access to all settings such as **preset, mute/solo, gain, delay, polarity, and matrix** can be done via the remote software user interface. A **Contour EQ** window is also available for quick and easy **loudspeaker system** frequency response setting. In particular, the original **Array Morphing** tool is dedicated to **line source array systems**. LA NETWORK MANAGER also features **system** standby and initialization control in addition to comprehensive visual monitoring of the audio signal paths and quick detection of any faults in the attached **networks**.

LA NETWORK MANAGER features two possible workflows: the **offline** and **online modes**. In the **offline mode** the user can configure a **system** before connecting to an **L-NET Network**. In the **online mode** a **system** can be sent to or retrieved from the synchronized **L-NET Network**, and software provides real time control of each **group** and **unit** in the **L-NET Network**. Three saving levels are available: **system (.system file), preset (.preset file), and output channel (.channel file)** [6.7.1].



Figure 2: LA NETWORK MANAGER user interface

## 5 INSTALLATION

### 5.1 Installing LA NETWORK MANAGER Software

#### 5.1.1 Computer system requirements

Running LA NETWORK MANAGER Software requires a **computer** fitted with the following material (minimum configuration):

- Operating system: Microsoft® Windows® XP®, Vista®, Seven®, or higher.
- RAM: 512 Mo.
- Monitor: 800 x 600, 24 bits, color.
- Network card: 100 Mbps Ethernet.

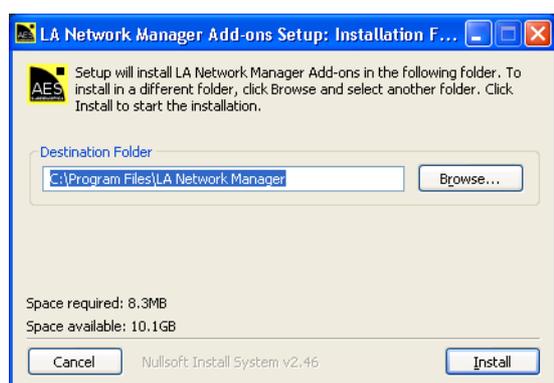
**Note:** It is possible to run LA NETWORK MANAGER on Mac® OSX® by using Apple® Boot Camp, Parallels Desktop, Sun VirtualBox, or VMware Fusion for example. Refer to the applicable third-party documentation.

#### 5.1.2 Software installation

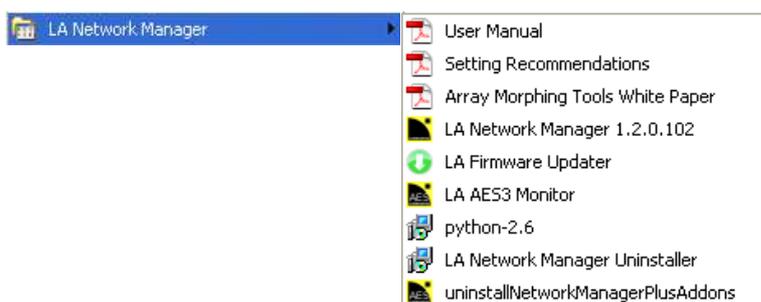
1. Download the **LA NETWORK MANAGER Software pack** [2.3].
2. Unzip and run the **LA\_Network\_Manager\_With\_Addons.exe** application.
3. Follow the instructions given in the installation wizard (Figure 3a). The application will install LA NETWORK MANAGER, LA AES3 MONITOR, and LA FIRMWARE UPDATER as well as launch and uninstall icons in the **Start/Programs/LA Network Manager** menu (Figure 3b).



The installation process also includes the **Python 2.6 dynamic-link library (dll)** as it is used by the programs.  
Do NOT modify the setup options, use the default options.



a.



b.

**Figure 3: LA NETWORK MANAGER Software pack installation**

#### 5.1.3 Software removal

The **LA NETWORK MANAGER Software pack** removal procedure consists in clicking on the **uninstallNetworkManagerPlusAddons** icon (Figure 3b) and following the instructions given in the uninstall wizard.



Removing the pack will not remove the Python 2.6 dll.  
If necessary, Python can be removed by clicking on the **Programs/Python/Uninstall Python** icon.

### 5.2 L-NET Network considerations

#### 5.2.1 The L-NET Network

The proprietary **L-NET Network** uses a high speed data transfer of 100 Mbps for real-time monitoring and control of each individual **unit** (LA4 or LA8 amplified controller) within a network of up to 253 **units**. Connecting the **computer** to a set of **units** requires to physically connect the devices to each other [5.2.2-5.2.3] and to allocate an **IP Address** for each one [5.3].

#### 5.2.2 Physical connections



Connect the **computer** and **units** to the network using **straight-through** Ethernet cables of **CAT5e U/FTP** category (or higher) and of **100 m/328 ft** maximum length.

**Exception:** If the **Auto MDI/MDIX** functionality is **not available** on the switch used to build a **star** or **hybrid** topology [5.2.3], use a **crossover cable** between the switch and each controller.

**Notes:** CAT5e U/FTP stands for a category 5, unshielded cable with foiled twisted pairs.

A straight-through cable has pin 1 of one side connected to pin 1 of the other side, pin 2 to pin 2... A crossover cable has 1-2 and 3-6 pin pairs crossed (it can be seen directly on the cable by comparing the wire colors between both RJ45 connectors).

↪ Connect the **computer** to a **unit** by plugging a cable to the RJ45 socket of the computer's Ethernet card and to the **unit's L-NET IN** socket located on the rear panel (see Figure 4).

↪ Connect a first **unit** to a second one by plugging a cable to the first **unit's L-NET OUT** socket and to the second **unit's L-NET IN** socket.

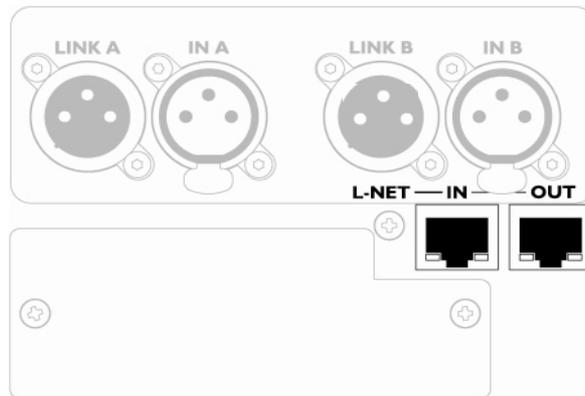


Figure 4: L-NET IN and OUT sockets located on the rear panel of a unit

### 5.2.3 L-NET Network topologies

Multiple L-NET Network topologies such as **daisy-chain**, **star**, and **hybrid** are quickly and easily configurable, allowing total flexibility in achieving the required **system** architecture. The **star** and **hybrid** network topologies require the addition of a **switch**.



ONLY use universal Ethernet **switch** rated at 100 Mbps minimum.

#### Daisy-chain topology

Based on the series connecting scheme, the **daisy-chain** network topology is the simplest way to connect the **computer** and the **units** to each other, as shown in Figure 5:

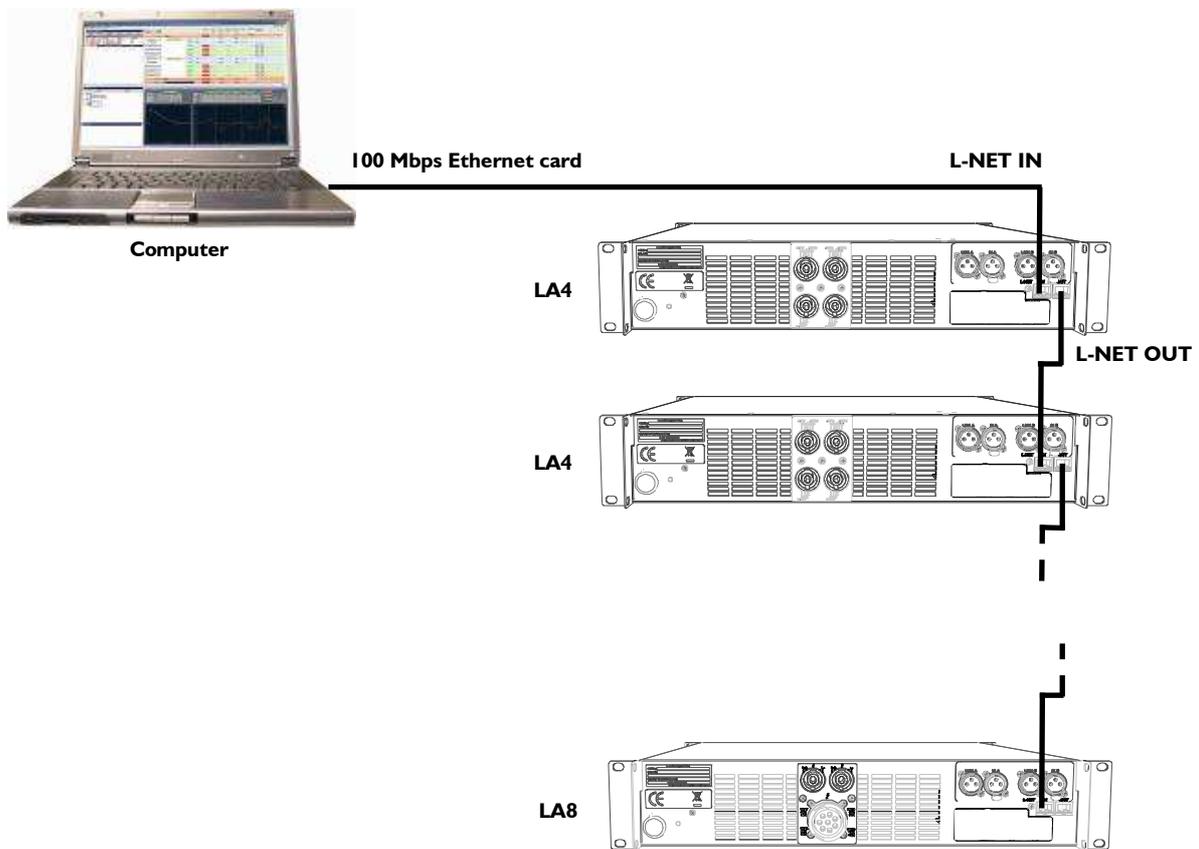


Figure 5: Daisy-chain network topology

### Star topology

Based on the parallel connecting scheme, the **star** network topology is the most common way to connect the **computer** and the **units** to each other. This topology requires a **switch** as shown in Figure 6:

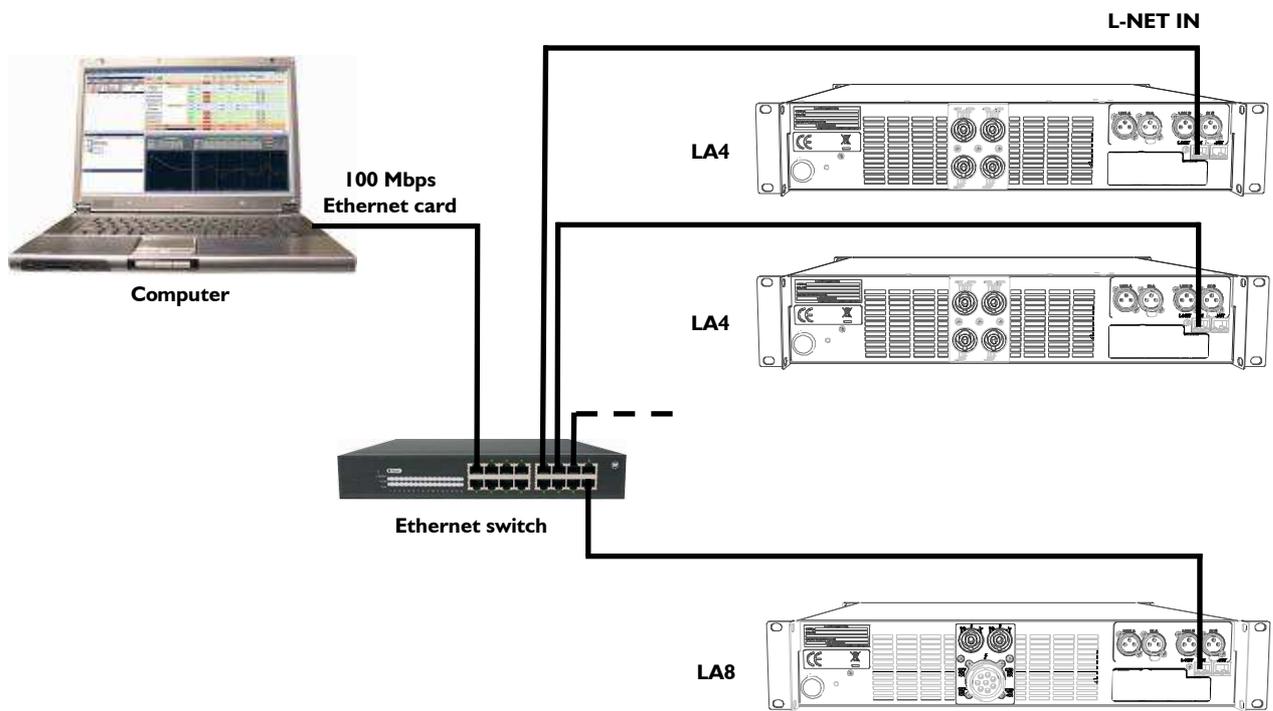


Figure 6: Star network topology



The parallel connecting scheme reduces the risk of network failure: even if the connection between the **switch** and a particular **unit** fails, the other **units** remain connected to the **switch**.

## Hybrid topology

The **hybrid** network topology is a mix between the **daisy-chain** and the **star** topologies, e.g. a mix between the series and parallel connecting schemes, as shown in Figure 7:

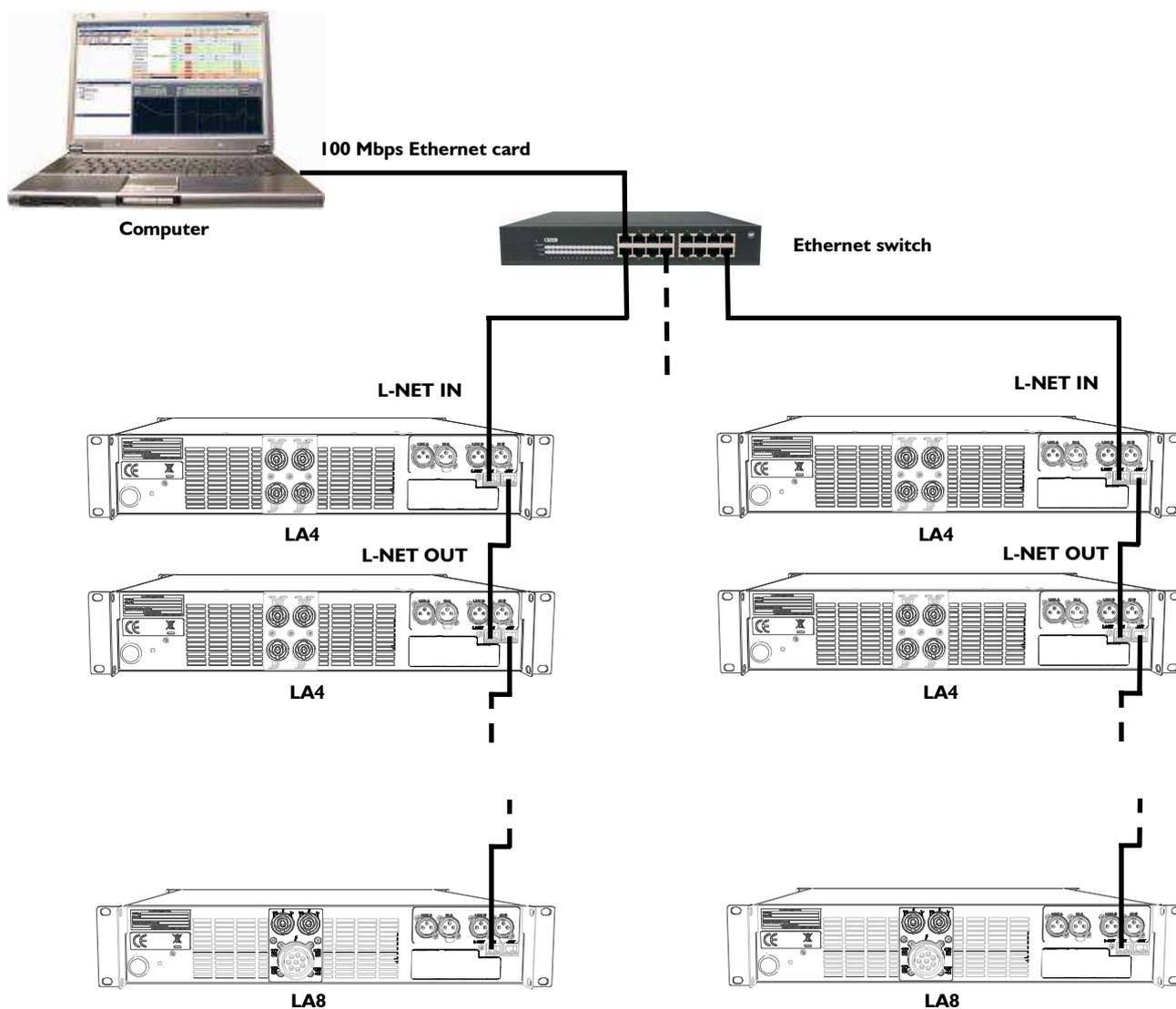


Figure 7: Hybrid network topology

## 5.3 Managing IP Addresses

### 5.3.1 Introduction

It is possible to connect up to 253 **units** to a master **computer** running LA NETWORK MANAGER within the proprietary L-NET Network. Each device (**computer** or **unit**) uses an **IP Address** to be identified and to communicate.

An **IP Address** is a unique identification number within the Internet Protocol (IP) standard. The usable L-NET **IP Addresses** are of the form **192.168.1.\*\*\***, where **\*\*\*** is taken between 1 and 254.

L-ACOUSTICS® recommends using the last available IP Address (**192.168.1.254**) for the **computer's** Ethernet card. The other IP Addresses between **192.168.1.1** and **192.168.1.253** can be allocated to the **units** in the L-NET Network.

### 5.3.2 Computer's IP Address setup for Windows® XP® and Vista®

Set the **TCP/IP Address** of a **computer** running Windows® XP® or Vista® operating system by applying the following procedure:

1. In the **Start** menu, select **Settings/Network Connections**.
2. Right-click on **Local Area Connection** (see Figure 8) and select **Properties**.
3. In the **Local Area Connection Properties** window, double-click on the **Internet Protocol (TCP/IP)** item (see Figure 9).
4. In the **Internet Protocol properties (TCP/IP)** window, select **Use the following IP Address** and type in the **IP Address** and the **subnet mask** (see Figure 10).



The computer's **IP Address** must be set to **192.168.1.254** and the **subnet mask** to **255.255.255.0**.

5. Click on the **OK** key and close all remaining windows.

**Note:** Fast and easy management of multiple IP Addresses (to switch between L-NET and Internet, for example) is possible using free software available on the web.

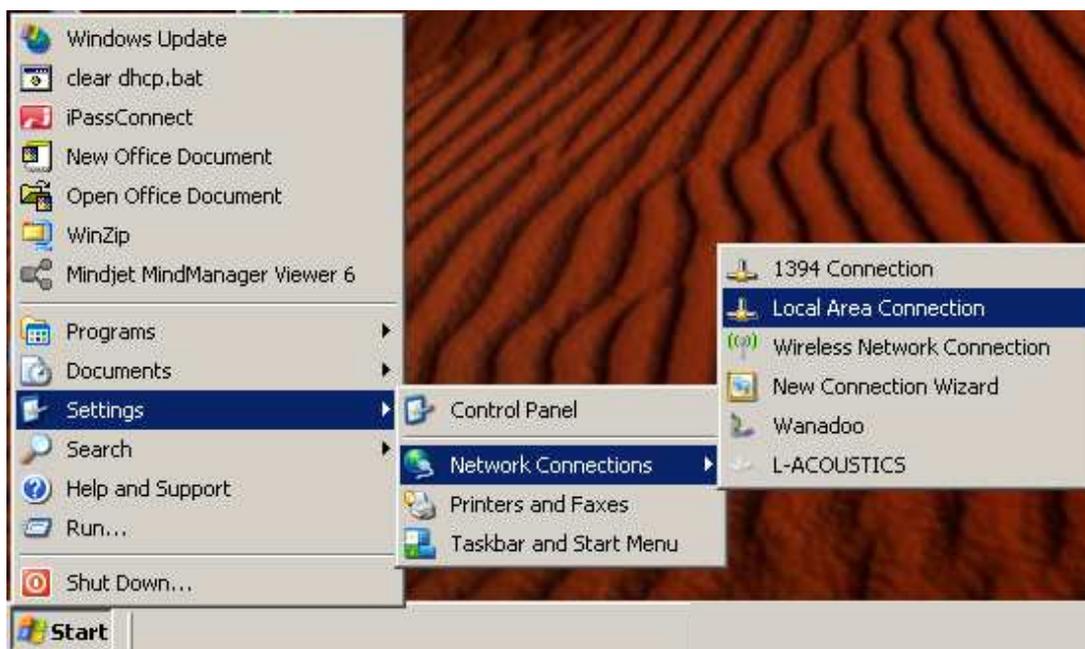
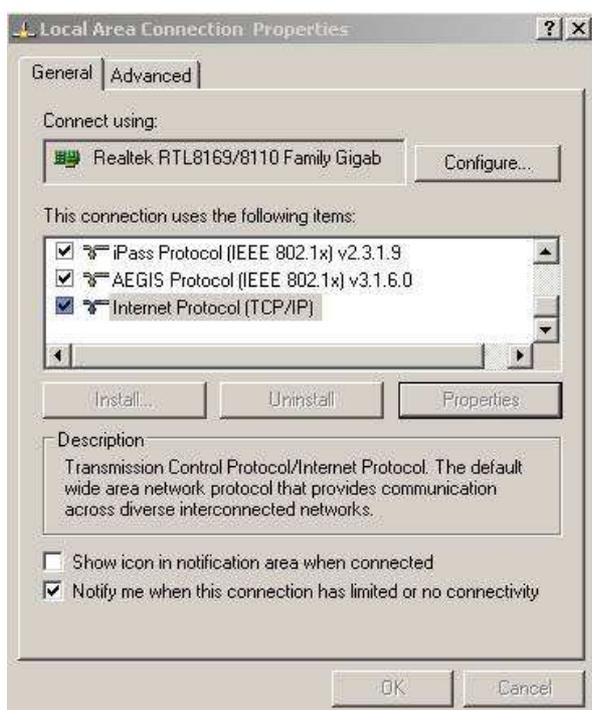
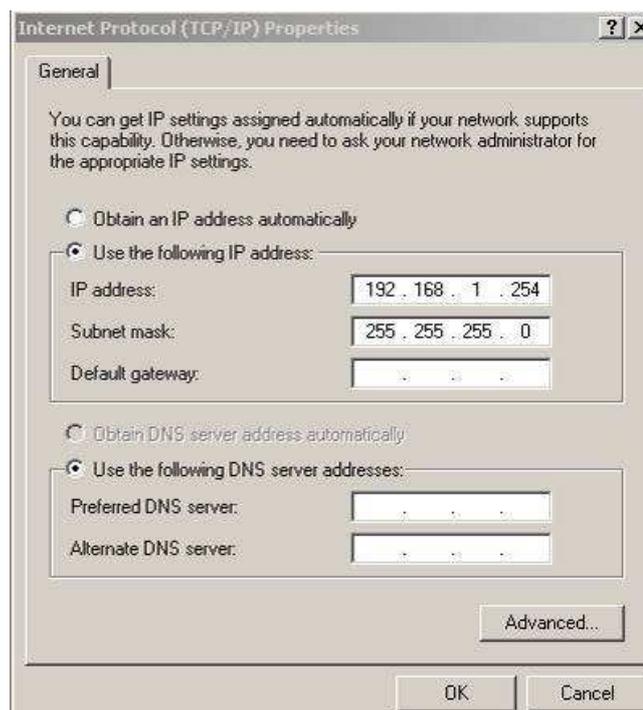


Figure 8: Selecting the Local Area Connection item



**Figure 9: Double clicking on the Internet Protocol (TCP/IP) item**



**Figure 10: Filling in the IP Address and Subnet mask**

### 5.3.3 Computer's IP Address setup for Windows® Seven®

Set the **TCP/IP Address** of a **computer** running Windows® Seven® operating system by applying the following procedure:

1. In the **Start** menu, select **Control Panel**.
2. In the **Control Panel** menu, select **Network and internet**.
3. In the **Network and internet** menu, select **Network and Sharing Center**.
4. In the **Network and Sharing Center** menu, select the item facing the **Connections** menu (see Figure 11).
5. In the new window, select **Properties**.
6. In the **Connection Properties** window, double-click on the **Internet Protocol Version 4 (TCP/IPv4)** item (see Figure 12).
7. In the **Internet Protocol Version 4 (TCP/IPv4) Properties** window, select **Use the following IP address** and type in the **IP address** and the **Subnet mask** (see Figure 13).



The computer's **IP Address** must be set to **192.168.1.254** and the **subnet mask** to **255.255.255.0**.

8. Click on the **OK** key and close all remaining windows.

**Note:** Fast and easy management of multiple **IP Addresses** (to switch between L-NET and Internet, for example) is possible using free software available on the web.

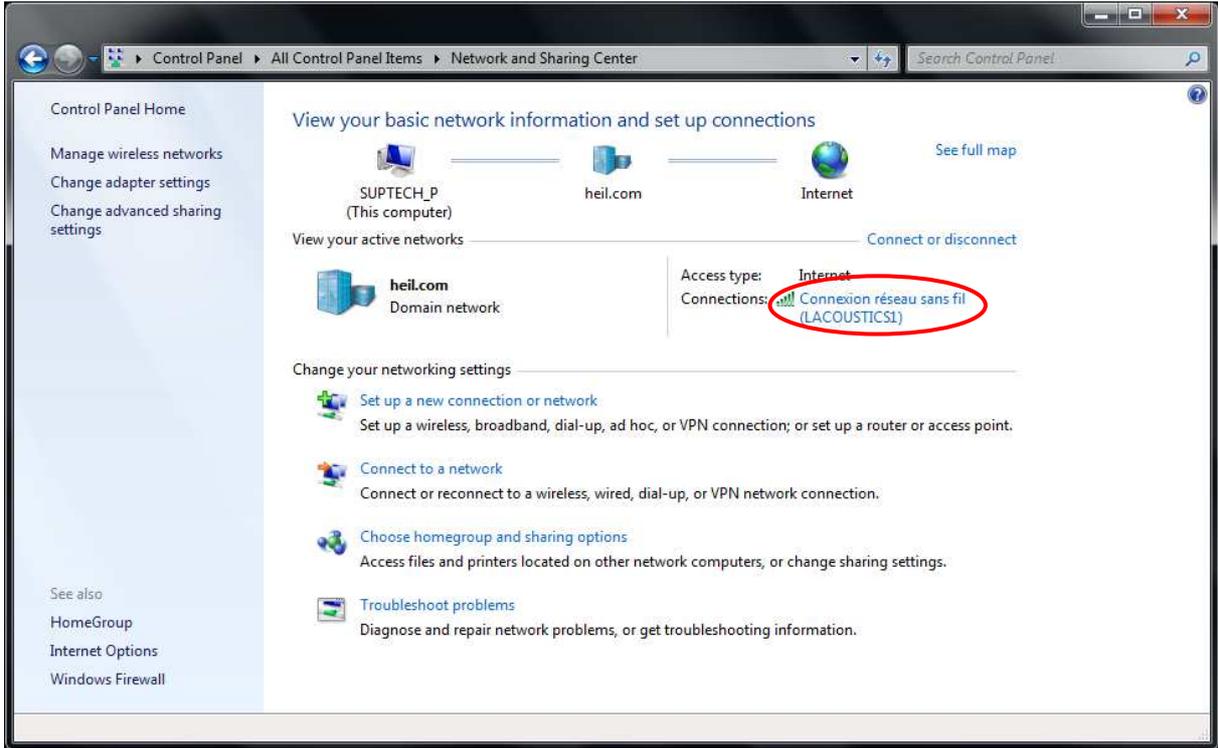


Figure 11: Selecting the Connections item

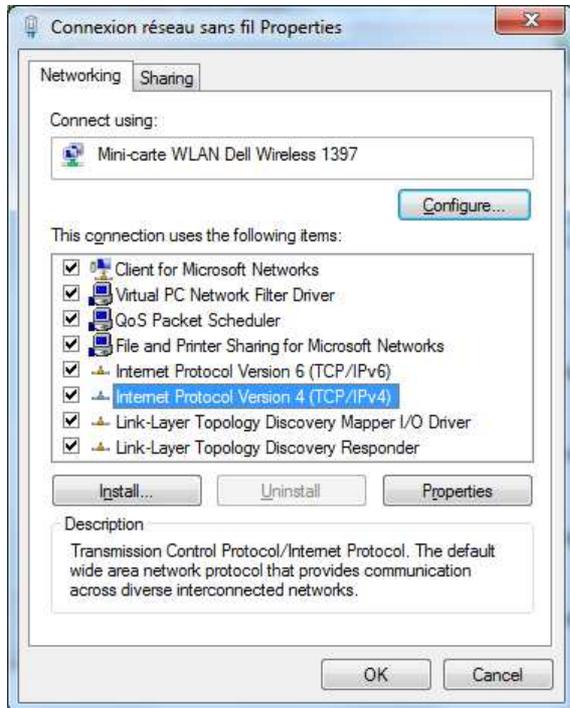


Figure 12: Selecting the Internet Protocol item

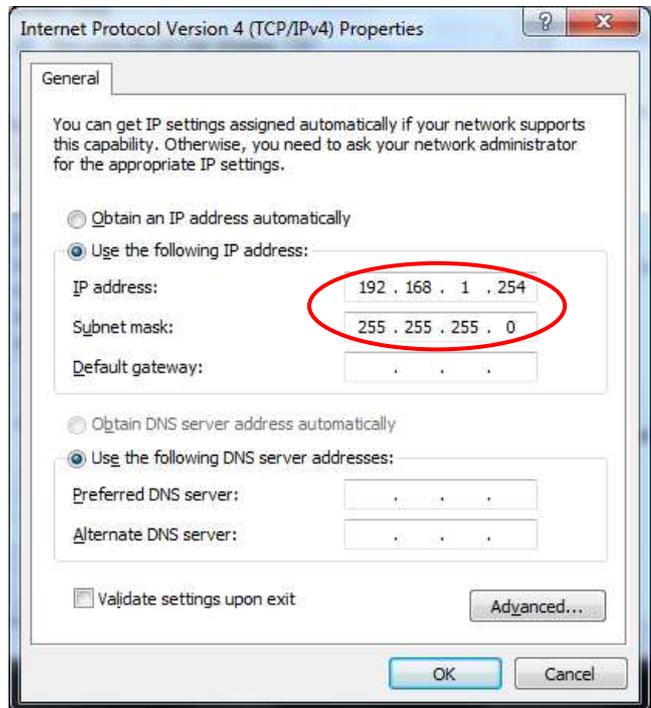


Figure 13: Filling in the IP Address and Subnet mask

### 5.3.4 Units IP Addresses setup

Each **unit's IP Address** is typically of the format **192.168.1.\*\*\***. To modify the value of the last 3 digits (the other digits are fixed and cannot be modified) apply the following procedure (or refer to the **LA4 or LA8 User manual** [2.3]):

1. On the unit's front panel, press and release the **encoder wheel**.
2. Rotate the **encoder wheel** clockwise to select the **OPTIONS** menu.
3. Press the **OK** key or the **encoder wheel** to enter the **OPTIONS** menu.
4. Select the **NETWORK ADDRESS control page** by pressing the **OK** key or the **encoder wheel**.
5. Set the last 3 digits of the chosen **IP address** by rotating the **encoder wheel**.



The unit IP address format must be **192.168.1.\*\*\*** with last 3 digits selected in range **1-253**.  
The IP addresses of the computer (**192.168.1.254**) and all units must be different from each other.

6. Press the **OK** key or the **encoder wheel** to validate the setting.

## 6 OPERATION

### 6.1 Quick start

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#### 6.1.1 Virtual and physical systems

A **system** is a set of **units** (L-ACOUSTICS® LA4 and/or LA8 amplified controllers) arranged into **groups**, and featuring:

- For each **unit**: the **IP Address**, **unit type**, **preset**, and **unit parameters** (**gain**, **delay**, and **polarity** settings for the 2 **input** and 4 **output channels**, as well as **mute** and **matrix** for the 4 **output channels**).
- For each **group**: the **group parameters** (**mute/solo**, **gain**, **delay**, and **contour EQ** settings) uniformly allocated to all **units** in the **group**.

Two **system** types exist:

- The **virtual system** is the **system** edited in the LA NETWORK MANAGER user interface when the **computer** is not synchronized with the L-NET Network.
- The **physical system** is the **system** composed of a set of **units** physically connected to the L-NET Network (including the **IP Addresses**, selected **presets**, **unit** and **group parameters** each **unit** memory contains).

#### 6.1.2 Offline and online modes

The **system** displayed in the software user interface, called the **current system**, can be managed within two possible workflows:

- In the **offline mode** the **computer** running LA NETWORK MANAGER is not synchronized with the L-NET Network. The **current system** is a **virtual system**.  
In this mode the user can create/modify the **virtual system** in advance with no need to be present at the event issue.
- In the **online mode** the **computer** running LA NETWORK MANAGER is synchronized with the L-NET Network: the data displayed on the software user interface (**IP Addresses**, selected **presets**, **unit** and **group parameters**) are those of the **units** of the **physical system**. They are transmitted and modified within the **Full Duplex** data transfer protocol.  
In this mode the user can control the **physical system** before and during the event performance.  
The **online mode** is activated when a **system** is sent to or retrieved from the L-NET Network [6.6.3].

### 6.1.3 Software launch

☞ Double click on the **LA NETWORK MANAGER** shortcut located on the desktop or select **Programs – LA Network Manager – LA Network Manager** in the computer's **Start** menu. A new window (Figure 14) prompts the user to select between three possible ways to edit a **system**:

#### Create an Offline System (offline mode)

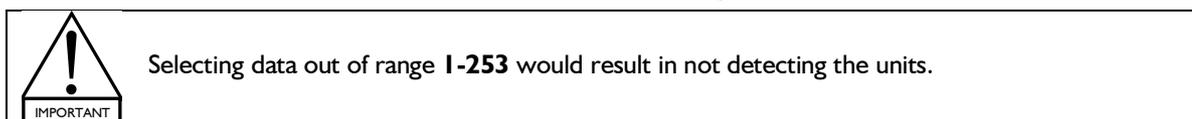
☞ Select this function and click **OK**. The software user interface gets empty so that a new **virtual system** can be built **unit by unit**.

#### Open a System File (offline mode)

☞ Select this function and click **OK**. Browse through the new window and select the chosen **system file** (.system). The **system** stored in the **system file** is loaded in the software user interface and becomes the **virtual system**.

#### Retrieve System from Network (online mode)

1. Select this function. Select the IP Address range to be scanned through the L-NET Network by filling in both values **from 192.168.1.xxx to xxx** where **xxx** is chosen in range **1-253**.



2. Click **OK**: the **physical system** is retrieved from the L-NET Network and becomes the **current system**. The **online mode** is activated.

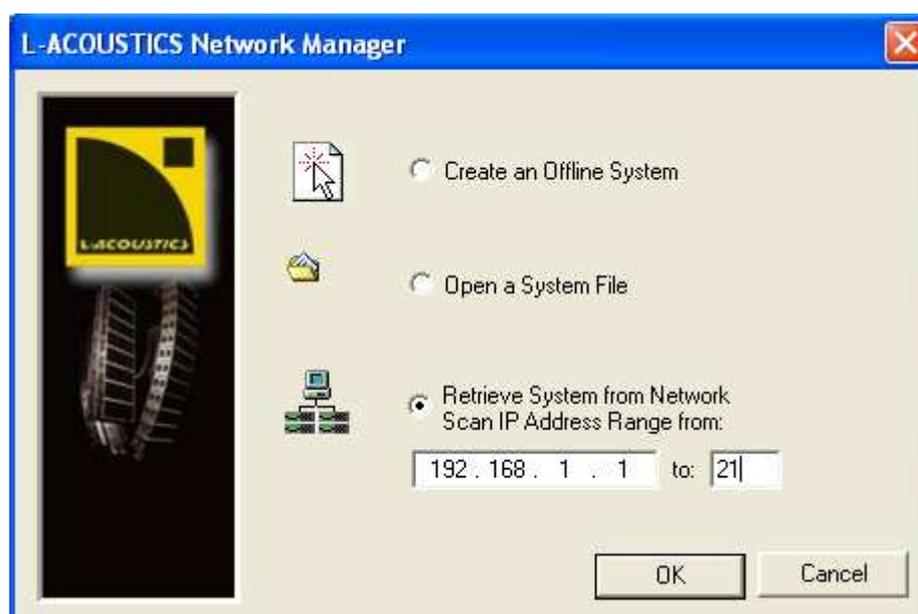
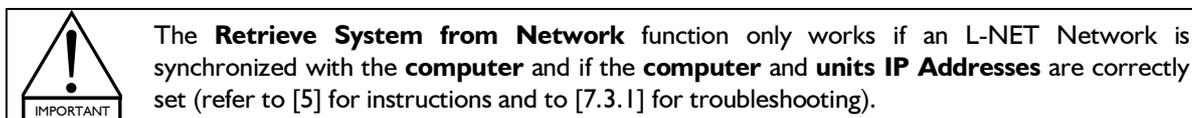


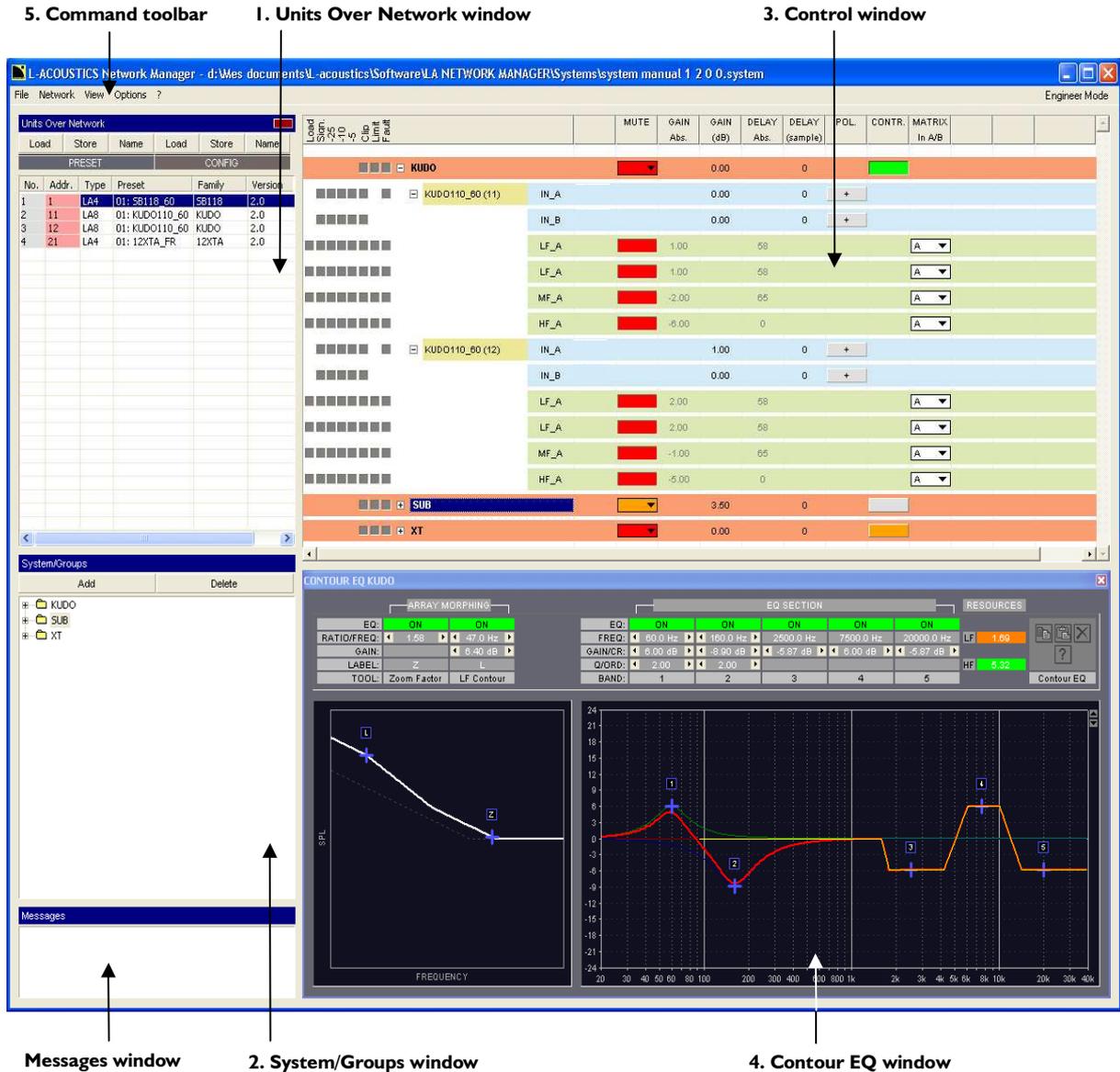
Figure 14: Launch window

**6.1.4 Software user interface**

The LA NETWORK MANAGER user interface (Figure 15) features **four operating windows** and a **command toolbar** (fully detailed through [6.2-6.6]) for **offline or online** overall management of the **current system**.

The additional **Message** window displays real-time information and warnings:

- ↳ Click on the **Message** window to stop the flashing sequence while keeping the message in the window.
- ↳ Double click on the last message and click **YES** in the displayed window to cancel all messages.



**Figure 15: LA NETWORK MANAGER User interface**

The following procedure features an overview of how to create and manage a **system** (**virtual** or **physical**) using LA NETWORK MANAGER software:

### 1. Units Over Network window (list of the units)

- ↳ Fast create, delete, or modify the **units** (**IP Address**, **unit type**, **preset**) composing the **system** by left and right mouse clicking operations [6.2].

### 2. System/Groups window (list of the groups and attached units)

- ↳ Fast form the **groups** and assign **units** to each one by dragging and dropping **units** from the **Units Over Network** window [6.3].

### 3. Control window (output channel import/export functions, unit and group parameters settings)

- ↳ Use mouse clicking operations to fast import/export **output channels** and set the **group parameters** (applying for all **units** in the selected **group**) and **unit parameters** (applying only for the selected **unit**).



Importing at least one **output channel** into a **unit** results in creating a **custom preset** [6.7.2].

The **group parameters** are the **mute/solo**, **gain**, **delay**, and **contour EQ** parameters (see step 4). The **unit parameters** are the **mute**, **gain**, **delay**, **polarity**, and **matrix** parameters. The **gain** and **delay** parameters have their **group** and **unit** values summed in the **Abs.** columns that show absolute values.

The **matrix** parameter is for selecting the way an **output channel** is driven by the **IN A** and/or **IN B** input channels (A, B, A+B, or A-B).

In **online mode**, the **control window** provides real-time monitoring and control of each **group** and **unit** status (including audio signal path and faults) [6.4].

In both **offline** and **online modes**, the resources of each loudspeaker (**headroom**) can be displayed at all times [6.6.3].

### 4. Contour EQ windows (loudspeaker system frequency response settings for each group)

- ↳ For each group, a selectable **Contour EQ** window allows fast intuitive loudspeaker frequency response settings by mouse click and drag operations [6.5].

The ARRAY MORPHING section is dedicated to **line source array** response setting using both ZOOM FACTOR and LF CONTOUR tools.

The EQ SECTION is a mini EQ station composed of 2 parametric IIR filters (#1-2) for room acoustic equalization and 3 linear phase FIR plateau filters (#3-5) for air absorption compensation.

### 5. Command toolbar (File, L-NET Network functionalities, and user options)

Feature **system** file, L-NET Network, as well as software option menus [6.6].

## 6.2 Units Over Network window

### 6.2.1 Overview

The **Units Over Network** window (Figure 16a) displays the list of the **units** composing the **current system** and allows to create/modify them. In this window features the following information:

- **Unit number (No.)** Counts the **units** composing the **system**.
- **IP Address (Addr.)** Identifies the **unit** within the L-NET Network.

The **IP Address** cell color code is: **pink** in **offline mode**, **green** in **online mode**, and **blue** in **standby mode** or if a connection default occurs (see Figure 16a).



The **IP Address** is not linked to the **unit number**.  
If a **unit** has been disconnected, the **Disconnected Units** window (Figure 16b) is displayed. Click on the **Reconnect** function to reconnect the **unit** as soon as possible.

- **Unit type (Type)** Specifies whether the **unit** is an LA4 or an LA8 amplified controller.
- **Current preset (Preset)** Displays the name and **memory location** (from 1 to 99) of the **current preset**.
- **Preset family (Family)** Specifies the **preset family** to which the **current preset** belongs.
- **Preset Library version number (Vers.)** Specifies the version number of the **preset family** the **current preset** comes from.



It is recommended to use the **preset** of latest version as the optimization level will be increased. However, the user can load any older **preset** in order to recover his personal settings.

**Example:** In Figure 16a, the **preset** versions are **2.2** (latest version) and **1.x** (older versions).



Figure 16: (a) Units Over Network window (b) Disconnected Units window

Two menus are available to manage the **units**:

- **Right-clicking** menu [6.2.2]: Create, delete, or modify a **unit** by directly right-clicking on the **unit** or on a blank location.
- **PRESET** and **CONFIG** toolbars [6.2.3]: Manage the **presets** in the physical **units** in **online mode**.

## 6.2.2 Right-clicking menu

- Right-click on a **unit** to display the **right-clicking** menu (see **unit 1** in Figure 17). All the selectable functions are described below.
- Right-click on a blank cell to access to the **Add new Units...** function.

**Note:** In Figure 17, the star sign (\*) displayed in the **Preset** cell of **unit 2** indicates that parameter settings have been modified from the original **preset** stored in memory. It is synchronized with the **physical unit's** LCD screen (refer to the **LA4 or LA8 User manual** [2.3]).

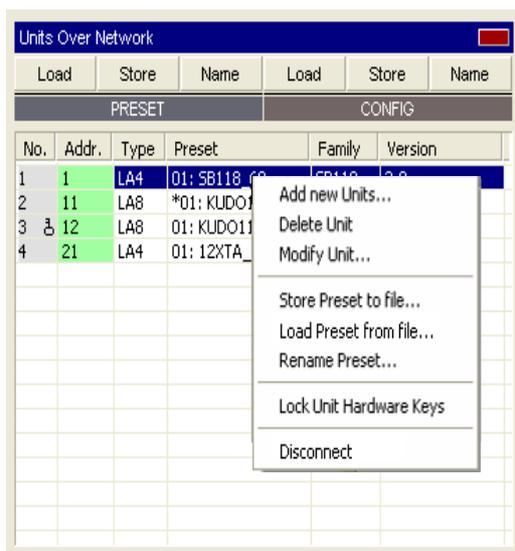


Figure 17: Right-clicking menu

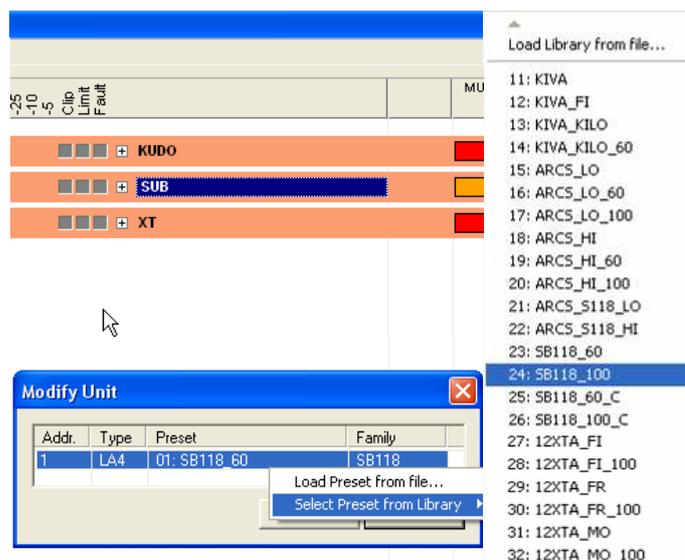


Figure 18: Selecting a preset from the LA4 Library

**Add new Units...** This function adds a new **virtual unit**.

1. Left-click on this function: a new window is displayed (see Figure 18).
2. Click on the **Addr.** cell and select an available **IP Address** in the displayed list.
3. Click on the **Type** cell to alternatively select the **LA4** or **LA8** unit type.
4. Directly load a preset from a preset file by applying the following steps: click on the **Load Preset from file...** function, browse to select the chosen **preset file (.preset)**, select the **user memory location** (from 1 to 10) for the new **preset**, and click **OK**.

**Or**

Load a preset from a preset library by applying the following steps: click on the **Select Preset from Library** function, select the chosen **preset** among the list, select the **user memory location** (from 1 to 10) for the new **preset**, and click **OK**.



If the list does not exist or is the wrong one the user may load the **library file** prior selecting a **preset** (click on the **Load Library from file...** function and browse to select the chosen **.LA4** or **.LA8** library file).

The **LA4** and **LA8 PRESET LIBRARY Packs** are downloadable from the web [2.3].

An **LA8 factory preset** cannot be loaded into an **LA4** unit.

The **preset family** directly depends on the loaded **preset**. It is set automatically and thus cannot be modified by the user.

5. Click **OK** to validate and return to the software user interface.

**Delete Unit** This function deletes the selected **unit**.

☞ Left click on this function. Click **OK** in the new window. The **unit** will be deleted.



This function is only available in **offline mode**.

**Modify Unit...** This function allows modifying the **IP Address** and/or the **current preset** of the selected **unit**.

1. Left click on this function: a new window is displayed (see Figure 18).

2. Apply the chosen operations among the following:

☞ Click on the **Addr.** cell and select an available **IP Address** in the displayed list.



In **online mode**, it is NOT possible to modify the **IP Address** of a **physical unit** from LA NETWORK MANAGER.

This operation is ONLY possible from the **physical unit's** front panel (refer to the **LA4 or LA8 User manual** [2.3]).

☞ Directly load a **preset** from a **preset file** by applying the following steps: click on the **Load Preset from file...** function, browse to select the chosen preset file (**.preset**), select the **user memory location** (from 1 to 10) for the new **preset**, and click **OK**.

**Or**

Load a **preset** from a **preset library** by applying the following steps: click on the **Select Preset from Library** function, select the chosen **preset** among the list, select the **user memory location** (from 1 to 10) for the new **preset**, and click **OK**.



If the list does not exist or is the wrong one the user may load the **library file** prior selecting a **preset** (click on the **Load Library from file...** function and browse to select the chosen **library file**).

The **LA4 and LA8 PRESET LIBRARY Packs** are downloadable from the web [2.3].

An **LA8 factory preset** cannot be loaded into an **LA4 unit**.

The **preset family** directly depends on the loaded **preset**. It is set automatically and thus cannot be modified by the user.



In **online mode**, when loading a **preset** to a **physical unit**, the **current preset** will be overwritten without control. Check the parameters before loading as it could result in possible speaker damage.

**Note:** The **right-clicking** menu allows loading presets that are stored in the **computer**. On the contrary, the **PRESET** and **CONFIG** menus [6.2.3] allow loading **presets** that are stored in the **physical unit**.

3. Click **OK** to validate and return to the software user interface.

**Store Preset to file...**

This function stores the **current preset** of a selected **unit** into a **preset file** (**.preset**) including the **unit parameters**.

☞ Click on this function. In the new window, browse to select the chosen directory, keyboard the **preset file** name, and click **OK**.

## Load Preset from file...

This function loads a **preset** from a **preset file** (.preset) including the **unit parameters**. This **preset** will become the **current preset** in the selected **unit**.

- ☞ Select this function. In the new window, browse to select the chosen **preset file**, select the **user memory location** (from 1 to 10) in which the new **preset** will be loaded, and click **OK**.

	<p>An <b>LA8 factory preset</b> cannot be loaded into an <b>LA4 unit</b>. The <b>preset family</b> directly depends on the loaded <b>preset</b>. It is set automatically and thus cannot be modified by the user.</p>
	<p>In <b>online mode</b>, when loading a <b>preset</b> to a <b>physical unit</b>, the <b>current preset</b> will be overwritten without control. Check the parameters before loading as it could result in possible speaker damage.</p>

## Rename Preset...

This function renames the selected **preset**. This is useful in case of **custom preset** creation [6.7.2].

- ☞ Select this function. In the new window, keyboard the new **preset** name and click **OK**.

	<p>A <b>preset</b> can be renamed <b>ONLY</b> if it is located in a <b>user memory location</b> (from 1 to 10).</p>
---	---

## Lock Unit Hardware Keys (online mode)

- ☞ Clicking on this function alternatively locks and unlocks the front panel commands (even the **mute** function) for the selected **physical unit**.

**Notes:** This function is useful in **online mode** but can also be activated in **offline mode** and then be sent to the **physical system** using the **Send System To Network** function [6.6.3].

When a **unit** is locked a **key** is displayed in the corresponding **No.** cell (see **unit 3** in Figure 17).

When trying to press any keys on a locked **unit's** front panel, the **DISPLAY LOCKED** message is displayed on the LCD screen and the action has not effect, even for the **mute** function (refer to the **LA4 or LA8 User manual** [2.3]). This prevents any unintentional operation during an event performance, for example.

## Disconnect (from online to offline mode) / Try to connect (from offline to online mode)

- ☞ Click on the **Disconnect** function to disconnect the selected **unit** from the L-NET Network.

	<p>When a <b>physical unit</b> pertaining to a <b>group</b> has been disconnected from the L-NET Network by using the <b>Disconnect</b> function the <b>group and unit parameters</b> [6.4] remain active into the <b>physical unit</b>.</p>
---	--

- ☞ Click on the **Try to connect** function to send the selected **virtual unit** to the **physical unit** in the L-NET Network.

	<p>The <b>Try to connect</b> function will work <b>ONLY</b> if the <b>virtual unit</b> is of same <b>IP Address</b> and <b>unit type</b> as the <b>physical unit</b>. On the contrary case, a conflict message will be displayed [7.3.2].</p>
---	---

	<p>After having disconnected a <b>unit</b> and having imported a new <b>preset</b> or a new <b>output channel</b> into it, <b>NEVER</b> use the <b>Try to Connect</b> function to put the <b>unit</b> in the <b>online mode</b>. In doing so, some parameters will <b>NOT</b> be updated into the <b>physical unit</b> which could result in possible speaker damage. Rather apply the instructions provided in [6.7.2] for such an operation.</p>
---	--

**Note:** The mode for each **unit** is indicated by the color of the **IP Address** cell: **green** or **blue** for the **online mode** and **pink** for the **offline mode** (see Figure 16a).

6.2.3 PRESET and CONFIG menus

Only available in **online mode** the **PRESET** and **CONFIG** menu feature the same three functions: **Load**, **Store**, and **Name** (see Figure 19). They respectively modify the **current preset**, the **user memory location**, and the **preset name** into each selected **physical unit**. They apply for **one unit** in the **PRESET** menu or for **all the synchronized units** in the **CONFIG** menu.

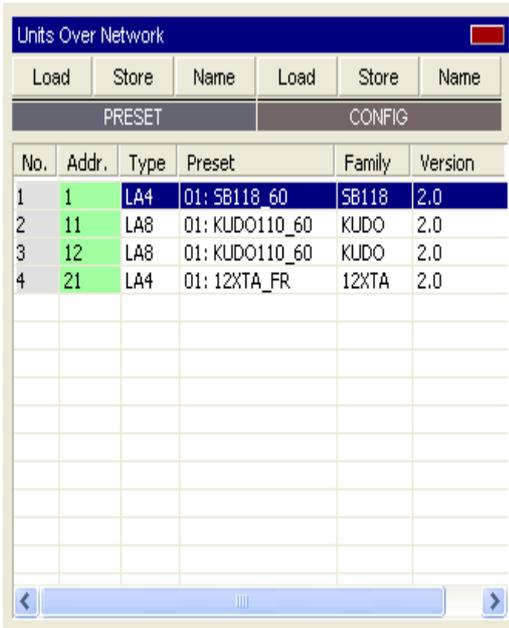


Figure 19: PRESET and CONFIG menus

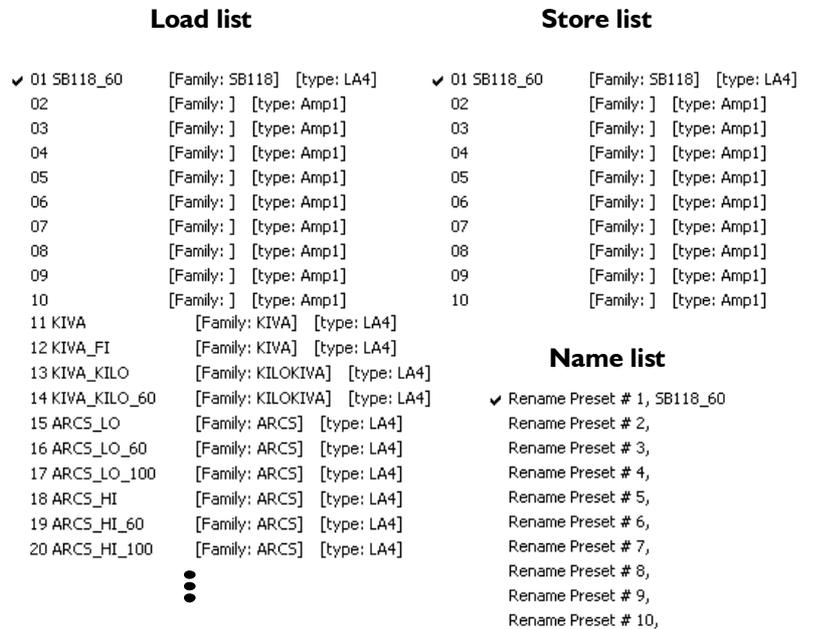


Figure 20: Load, Store, and Name lists displayed from the unit 1 PRESET menu

Load

In the **PRESET** menu, the **Load** function applies for the selected **physical unit** and loads a **preset** taken from the **preset library** stored in the **unit** (see the **Load list** in Figure 20). The selected **preset** will become the **current preset**.

☞ Click on the chosen **physical unit**, click on the **Load** key in the **PRESET** menu, select the chosen **preset** among the displayed list, and click **YES**.

In the **CONFIG** menu, the **Load** function applies for all the synchronized **physical units** simultaneously. For each **unit**, the **preset** is taken from one of its 10 **user memory locations** (1-10 of the **Load list** in Figure 20). The **user memory location** number is common to all **units** but the selected **preset** is particular to each **unit** and can be different from one to another.

☞ Click on the **Load** key in the **CONFIG** menu, select the chosen **user memory location** number, and click **YES**.



In both menus the **Load** function **ONLY** works when the selected **preset** and the **current preset** are pertaining to the same **preset family**. On the contrary case (including for empty **memory locations**) a conflict list is displayed for each concerned **physical unit** [7.3.2].

Loading a new **preset** the **family** of which is different from the **current preset's** one must be done directly on the **physical unit's** front panel.

## Store

In the **PRESET** menu, the **Store** function applies for the selected **physical unit** and stores the **current preset** (including the **unit parameters**) into one of its 10 **user memory locations** (1-10 in the **Store list** of Figure 20).

↵ Click on the chosen **physical unit**, click on the **Store** key of the **PRESET** menu, select the chosen **user memory location** among the displayed list, and click **YES**.

In the **CONFIG** menu, the **Store** function applies for all the synchronized **physical units** simultaneously. The **user memory location** number is common to all **units** but the **current preset** is particular to each **unit** and can be different from one to another.

↵ Click on the **Store** key of the **CONFIG** menu, select the chosen **user memory location**, and click **YES**.

## Name

In the **PRESET** menu, the **Name** function applies for the selected **physical unit** and renames one of its **user memory locations** (1-10 in the **Name list** of Figure 20).

↵ Click on the chosen **unit**, click on the **Name** key of the **PRESET** menu, keyboard the new name in the new window, and click **OK**.

In the **CONFIG** menu, the **Name** function applies for all the synchronized **physical units** simultaneously. The name and the **user memory location** are common to all **units**.

↵ Click on the **Name** key of the **CONFIG** menu, keyboard the new name, click **OK** and **YES**.



Renaming a **preset** does not change the **preset family** name.  
A **preset** can be renamed even if it is not the **current preset**.

### 6.3 System/Groups window

The **System/Groups** window (Figure 21) contains a list of the **groups** composing the **system**. In this window the user can create or modify the **groups** and assign **units** to each one.



Assigning a **unit** to a **group** is necessary to monitor and control it in the **control window** [6.4]. In particular, this allows setting the **group parameters** (**mute/solo, gain, delay, contour EQ**) that apply to all **units** in the **group**.

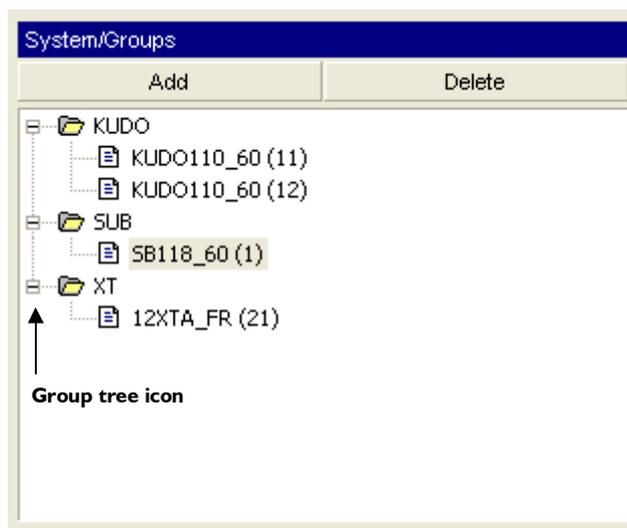


Figure 21: System/Groups window

#### Two ways to create groups and assign units to each one

- ↪ Click N times on the **Add** key to create N **groups**. They will automatically be named as **Group 1, Group 2 ... Group N**. If wanted, rename each one by clicking on its name and keyboarding the new name. Drag and drop each **unit** from the **Units Over Network** window to the chosen **group**.
- ↪ Drag and drop a **unit** to the empty **System/Groups** window. A **group** is automatically created and named as **Group 1**. Drag and drop the second **unit** to **Group 1** or to the empty area of the **System/Groups** window. In the latter case **Group 2** is automatically created. Repeat the procedure for all **units**. If wanted, rename each **group** by clicking on its name and keyboarding the new name.

**Note:** When assigning a **unit** to a **group**, the **No.** cell background color turns gray in the **Units over Network** window (see **units 1-3** in Figure 16a). On the contrary case, the background color remains white.



It is not possible to create subgroups (**groups** within a **group**).

It is possible to check if a **physical unit** is part of a **group** and to identify its **group** name by pressing and holding the **IN A** or **IN B** key on the **unit's** front panel. The name of the **group** will be displayed on the bottom right of the LCD screen (refer to the **LA4 or LA8 User manual** [2.3]).

## Deleting a unit or a group

- ↳ Click on the **unit** or **group** to be deleted, press the **Delete** key on the keyboard or in the **System/Groups** window, and click **YES** in the new window.



To move a **unit** from a **group** to another one, the user must delete the **unit** from the first **group** and reassign the **unit** to the second **group** (by dragging and dropping it from the **Units Over Network** window).

In the **unit**, the **group parameters** of the first **group** will be replaced by those of the second **group**.



In **online mode**, when a **unit** has been deleted from a **group** or if the **group** containing the **unit** has been deleted:

- The **group parameters** are cancelled into the **physical unit** while the **unit parameters** remain active [6.4].
- The **outputs** are muted on the **physical unit**.



Consider a **physical unit** in the **standalone mode**. If some **group parameters** remain active in it, they cannot be seen and accessed via the front panel user interface, and they are not preset dependent (they will remain the same even if a new **preset** is loaded).

Therefore, when recuperating a **physical unit** for a standalone application that has been previously used within a L-NET Network, L-ACOUSTICS® recommends using the **CLEAR GROUP PARAMETERS** function in order to clear all **group parameters** (refer to the **LA4 or LA8 User manual** [2.3]).

## Showing/hiding the units

- ↳ Alternatively clicking on a **group** tree icon displays or hides the **units** pertaining to this **group**.

6.4 Control window

The **control window** (Figure 22) allows overall monitoring and control of the **current system** through a removable tree.

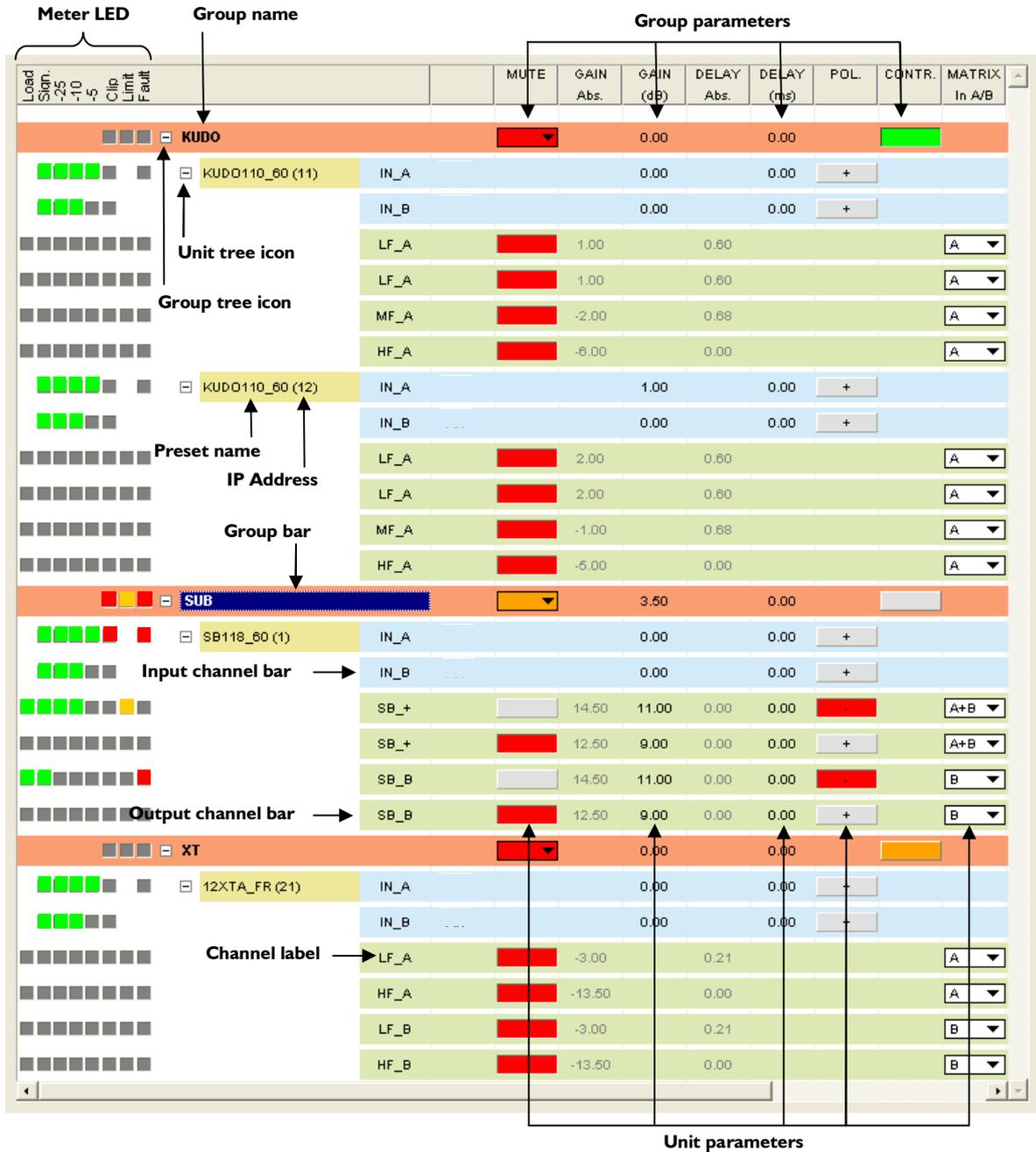


Figure 22: Control window

## 6.4.1 Monitoring the system

↵ The user can display or hide information by alternatively clicking on the tree icons: by default, only the **brown group bars** are displayed. Clicking on the **group** tree icon will add the **blue input channel bars**, and clicking on the **unit** tree icon will add the **green output channel bars** (Figure 22).

**Note:** The bar background colors can be modified [6.6.5, **Other Settings...**].

The available information is the following:

- Each **group** is displayed along with its **name** and **group parameters** (**mute/solo**, **gain**, **delay**, **contour EQ**). For each **group**, a **Contour EQ** window is selectable by clicking on the **CONTR.** key in the **group bar** [6.5].
- Each **unit** is displayed along with the **current preset**, **IP Address**, and for each **channel** (2 x in, 4 x out) the **channel label** (see Note below) and **unit parameters** (**mute**, **gain**, **delay**, **polarity**, and **matrix**).

**Note:** The **A** and **B** **input channels** are labeled **IN\_A** and **IN\_B** respectively. The 4 **output channels** are labeled **\*\*\_\*** where the first 2 digits indicate the **channel type** (**LF**, **MF**, **HF** for Low, Mid, High frequency transducers respectively, **SB** for subwoofer, **SR** for reversed subwoofer in cardioid applications, **PA** for passive enclosure), and the last digit indicates the **matrix** setting (**A**, **B**, **+**, **-** stand for **A**, **B**, **A+B**, **A-B** settings respectively). The **channel label** is displayed in the software user interface as well as on the **units** main screens (refer to the **LA4** or **LA8** **User manual** [2.3]) for each **channel**.

- The **group** and **unit parameter** values are cumulative for the **gain** and **delay** parameters. The cumulative values are shown in the **GAIN Abs.** and **DELAY Abs.** columns.
- In both **offline** and **online modes**, the resources of each loudspeaker (**headroom**) can be displayed at all times [6.6.3].
- In the **online mode**, real-time audio signal path and faults for each **channel** of each **unit** is indicated by the **LED** (**Load**, **Signal**, **-25**, **-10**, **-5**, **Clip**, **Limit**, **Fault**) described in the following (also refer to the **LA4** or **LA8** **User manual** [2.3] for additional information):

**LOAD** The **green** **Load** LED is lit when a speaker is connected at the corresponding **unit's output channel** and when the output power reaches at least 1 W (at 4 Ω). **Example:** In Figure 22 a speaker is connected to the **SBI 18\_60 output channel 1**.

**SIGNAL** The **green** **Signal** LED is lit when a signal is detected at the corresponding **unit channel** (input or output). **Example:** In Figure 22 a signal is detected at the **SBI 18\_60 output channel 1**.

**dB** The **green** **-25**, **-10**, **-5** **dB** LED are lit when the **unit channel** voltage (input or output) reaches respectively 25, 10, or 5 dB below the maximum level. **Example:** In Figure 22 the **SBI 18\_60 output channel 1** signal reaches 10 dB below the maximum level.

**CLIP** The **red** **Clip** LED is lit when the channel voltage (input or output) reaches the maximum level (22 dBu for the **input channels**). **Example:** In Figure 22 the **SBI 18\_60 input channel A** signal reaches the clip level. The **Clip** LED in the **group bar** is also lit.

**LIMIT** The **yellow** **Limit** LED indicates that the L-DRIVE or Temperature protection is active on the corresponding **output channel**. The signal is attenuated or muted. **Example:** In Figure 22 the **SBI 18\_60 output channel 1** signal is attenuated. The **Limit** LED in the **group bar** is also lit.

**FAULT** The **red** **Fault** LED indicates that one or several **input or output channels** on the **unit** are no longer operational. **Example:** In Figure 22 the **SBI 18\_60 output channel 3** is in faulty state, the signal is muted. The **Fault** LED in **input channel bar A** and in the **group bar** are also lit.



In case of **online** malfunction symptom (**unit** disconnection; CLIP, LIMIT, or FAULT LED lit; automatic channel attenuation or mute), wait a few minutes. If the symptom persists, please refer to [7.3.5].

In most cases, when the faulty component returns to nominal state the protection automatically gets off and the **unit** returns to normal operating state.

### 6.4.2 Offline and online system management

The **control window** allows the user to modify in advance (**offline**) or real-time monitor (**online**) the **group** and **unit parameters** of the **current system**.

#### Group parameters

The **group parameters** are the **mute/solo**, **gain**, **delay**, and **contour EQ** parameters located in the **brown group bar**.

↪ Clicking on the **MUTE** key will display a menu. Click one of the three options as described below:

- **Global** is for muting/unmuting all **output channels** in **all groups**.
- **This group** is for muting/unmuting all **output channels** in the **selected group**, or for unmuting them while muting all **channels** in the **other groups (SOLO)**.
- **[Preset Family] [Channel Type]** is for muting/unmuting all **output channels** featuring the **[Channel Type]** type and belonging to the **[Preset Family]** family in the **selected group**, or for unmuting them while muting all other **channels** in **all groups (SOLO)**.

**Notes:** In a **group**, the **MUTE** key background turns **red** when all the **channels** are muted, in **orange** when at least one **channel** is unmuted, and in **gray** when all the **channels** are unmuted.

The **SR channel type** is treated as the **SB channel type** for the **mute** function.

**Example:** The user has selected the 12XTA HF SOLO function as shown in Figure 23 to obtain the window displayed in Figure 24. Note that both 12XTA HF\_A and HF\_B **channels** have been unmuted and both SB118 **channels** 1 and 3 have been muted. The output **LED** are lit for the unmuted **output channels** only.

↪ Click on the **GAIN** cell and keyboard the **gain** value: the **gain** value is uniformly modified for all **output channels** in the **group**. **Gain** values are adjustable between -60 dB and +15 dB at 0.1 dB resolution.

**Example:** In Figure 24, all **output channel** gain values of the **SUB group** have been increased by 3.5 dB.

↪ Modify the **delay** value in the same way as for the **gain** value by clicking on the **DELAY** cell.

The **delay** value is adjustable from 0 to 500 ms (172 m/564 ft at 20 °C) at one hundredth resolution, within the limitation of 535 ms for the **Abs.** delay value.

Delay unit and temperature can be set in the menu displayed by right-clicking on the main **DELAY** cell (see Figure 24). The temperature value is adjustable from -60 to 60 °C (from -76 to 140 °F).

↪ Clicking on the **CONTR.** key edits the **Contour EQ** window which applies for all channels in the selected **group**. The **contour EQ** settings will be discussed in [6.5].



If a **physical unit** pertaining to a **group** has been disconnected from the L-NET Network because the **computer** has shut down, a cable has been removed, or the **New System** [6.6.2], **Delete Unit**, **Modify Unit**, or **Disconnect** [6.2.2] function has been used, the **group parameters** will remain active in the **physical unit**.

On the contrary, when using the **Delete** function in the **System/Groups** window [6.3] the **group parameters** will be cancelled in the **physical unit**.



Consider a **physical unit** in the **standalone mode**. If some **group parameters** remain active in it, they cannot be seen and accessed via the front panel user interface, and they are not preset dependent (they will remain the same even if a new **preset** is loaded).

Therefore, when recuperating a **physical unit** for a standalone application that has been previously used within a L-NET Network, L-ACOUSTICS® recommends using the **CLEAR GROUP PARAMETERS** function in order to clear all **group parameters** (refer to the **LA4 or LA8 User manual** [2.3]).

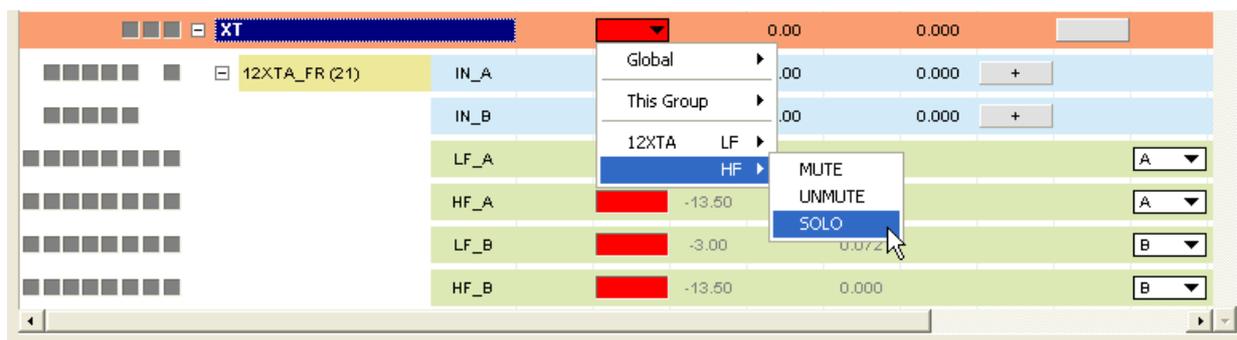


Figure 23: Selecting the 12XT HF SOLO function

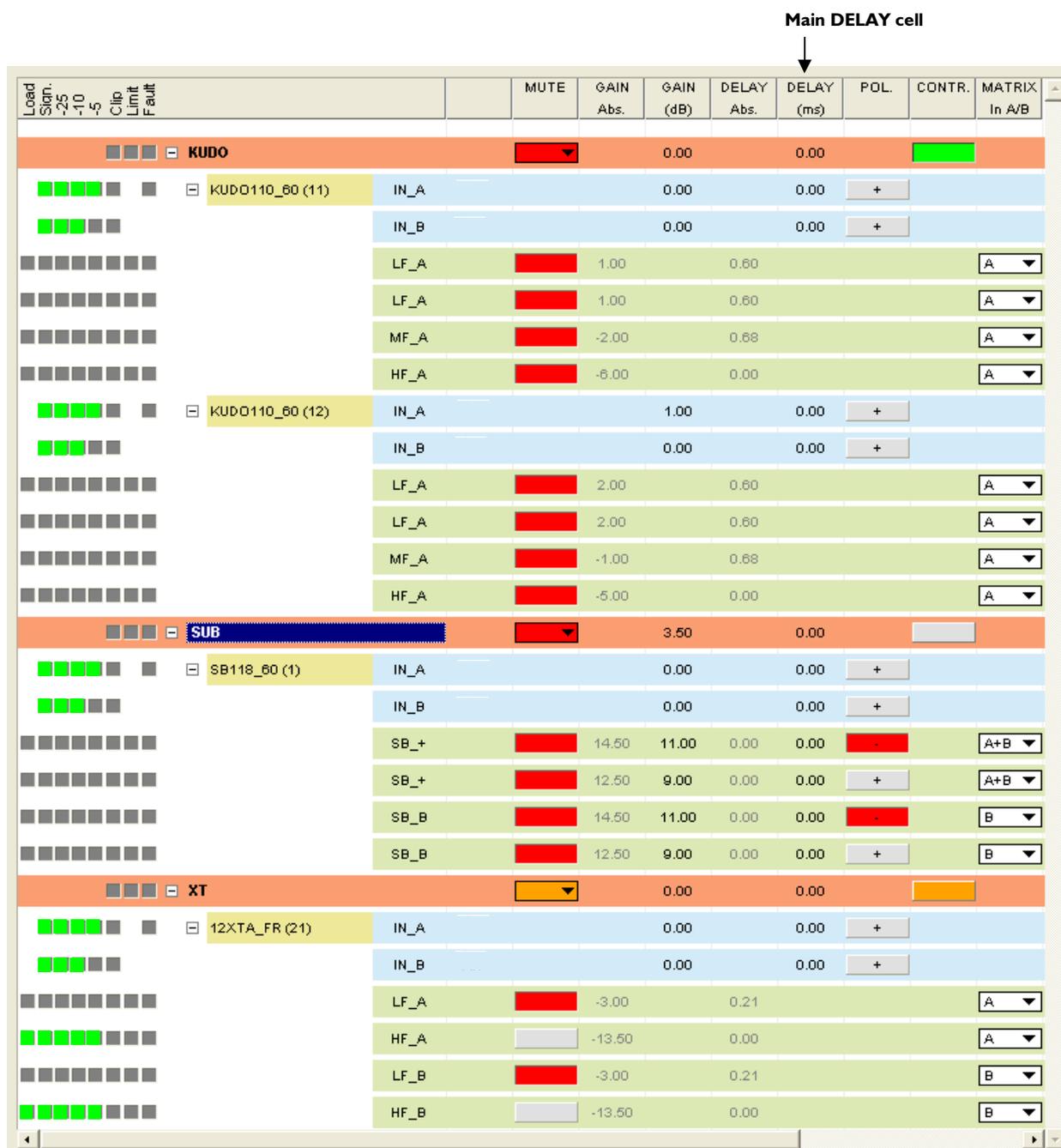


Figure 24: 12XT HF SOLO function selected

### Unit parameters

The **unit parameters** are the **mute**, **gain**, **delay**, **polarity**, and **matrix** parameters, located in the **blue** and **green unit bars** respectively for **input and output channels**. They only apply for the selected **channel**.

☞ Alternatively clicking on the **MUTE** key will mute (**red** color) or unmute (**gray** color) the selected **channel**. This function is only available for the Output Channels.

**Example:** In Figure 24 the **unit** in the **XT group** has **output channels 1 and 3** muted and **output channels 2 and 4** unmuted.

☞ Click on the **GAIN** cell and keyboard the **gain** value: the **gain** value is modified for the selected **channel**. **Gain** values are adjustable between -60 dB and +15 dB at 0.1 dB resolution.

**Example:** In Figure 24 the **unit** in the **SUB group** has **output channels 1 and 3** gain values increased by 11 dB. Thus, the addition of the **group** (3.5 dB) and **unit** (11 dB) gain values results in a total of 14.5 dB in the **GAIN Abs.** column.

☞ Modify the **delay** value in the same way as for the **gain** value by clicking on the **DELAY** cell.

**Delay** values are adjustable from 0 to 500 ms (172 m/564 ft at 20 °C) for the **input channels** and from 0 to 35 ms (12 m/39 ft at 20 °C) for the **output channels** at one hundredth resolution, within the limitation of 535 ms for the **Abs. Delay** value.

**Delay** unit and temperature can be set in the menu displayed by right-clicking on the main **DELAY** cell (see Figure 24). The temperature value is adjustable from -60 to 60 °C (from -76 to 140 °F).

☞ Alternatively clicking on the **POLARITY** key will set the polarity at 0° (+ sign and **gray** color) or 180° (- sign and **red** color).

**Example:** In Figure 24 the **unit** in the **SUB group** has **output channels 1 and 3** set at 180°, and **output channels 2 and 4** set at 0°.

☞ Alternatively click on the **MATRIX** key to set the **matrix** setting between the **A and B input channels** and the selected **output channel**. The available routing paths are listed in Table 2:

**Table 2: Available routing paths**

MATRIX key label	Output channel driven by the:	Channel label
<b>A</b>	A input channel signal	<b>xx_A</b>
<b>B</b>	B input channel signal	<b>xx_B</b>
<b>A+B</b>	Sum of the A and B Input Channel signals	<b>xx_+</b>
<b>A - B</b>	Difference between the A and B Input Channel signals	<b>xx_-</b>

**Examples:** In Figure 24, the **KUDO output channels** are all driven by **input channel A**, the **I2XTA** and last two **SBI 18 output channels** are driven by **A or B**, and the first two **SBI 18 output channels** are driven by the sum of **A and B**.



Modifying the **matrix** setting for a particular **output channel** in a **unit** can result, in some cases, in automatically modifying the **matrix** settings for other **output channels** in the **unit**. The rules are the following:

- For active 3-way, cardioid, or **KILOKIVA family presets**, the four **output channels** must feature identical **matrix** settings.
- For **presets** including active 2-way channels, each **LF/HF** associated **output channels** must feature identical **matrix** settings.

Refer to the **LA4-8 PRESET LIBRARIES User manual** (included in both **LA4** and **LA8 PRESET LIBRARY Packs** [2.3]) for additional information.



If a **physical unit** pertaining to a **group** has been disconnected from the L-NET Network because the **computer** has shut down, a cable has been removed, or the **New System** [6.6.2], **Delete Unit**, **Modify Unit**, **Disconnect** [6.2.2], or **Delete** [6.3] function has been used, the **unit parameters** will remain active in the **physical unit**.

### Store channel to file..., Load channel from file...

These functions, reachable by right-clicking on an **output channel bar**, allow the user to create **custom presets** by replacing one or more **output channels** in a **unit**. Refer to [6.7.2] for detailed creation procedure.

## 6.5 Contour EQ window

Click on the **CONTR.** key of a **group bar** in the **control window** to display the **Contour EQ** window dedicated to this **group**. The corresponding **CONTR.** key color turns **green**.

**Example:** Figure 25 shows the **Contour EQ** window for the **KUDO** group.

The **Contour EQ** window is for **loudspeaker system** frequency response setting. It is split into an **ARRAY MORPHING** section, an **EQ SECTION**, two **RESOURCES** indicators, and a **Contour EQ** menu.

The **ARRAY MORPHING** section is dedicated to **line source array** response setting and the **EQ SECTION** is a mini EQ station for room acoustic equalization and air absorption compensation.



All settings will uniformly apply for all **units** pertaining to the selected **group**.

**Note:** When closing the **Contour EQ** window the **CONTR.** key color turns **orange** if at least one parameter of the **Contour EQ** window has been enabled or turns **gray** if all parameters are disabled (see the **SUB** and **XT** groups in Figure 25).



Figure 25: Displaying the **Contour EQ** window for the **KUDO** group

#### 6.5.1 ARRAY MORPHING section

The ARRAY MORPHING section is dedicated to **line source array** frequency response setting using two original and simple tools: ZOOM FACTOR and LF CONTOUR. The background explanation for both tools is given in the **ARRAY MORPHING White paper** available in the **Help** menu [6.5.4] or the L-ACOUSTICS® web site [2.3].

	<p>ALWAYS apply the ZOOM FACTOR and LF CONTOUR tools to ALL enclosures in the array to avoid poor acoustic results.</p> <p>For that, check that all corresponding <b>units</b> are part of the <b>group</b> for which the current <b>Contour EQ</b> window applies.</p>
---	---

#### ZOOM FACTOR

1. In the **Zoom Factor** menu, click on the **ON/OFF** key and select **ON**. The ZOOM FACTOR tool is turned on and the key color turns **green** (see Figure 26).
2. Set the **Z** parameter (**RATIO** value between 0.32 and 3.16) by clicking on the side cursors, or keyboarding the value, or shifting horizontally the **Z** cross on the curve.
  - $Z = 1$  is the neutral setting and has no effect on the frequency response curve (dotted lines on Figure 26).
  - $Z > 1$  acts as a telephoto lens (array looks bigger, inter-enclosure angles appear larger, listening distance looks shorter). The corresponding response curve has transition frequency shifted towards right (Figure 26a). This setting will enhance the LF contribution and is useful for additional LF contour when using an ultra-compact system.
  - $Z < 1$  acts as a wide angle photo lens (array looks shorter, inter-enclosure angles appear smaller, listening distance looks longer). The corresponding response curve has transition frequency shifted towards left (Figure 26b). This setting will “flatten” the frequency response curve and is useful for classical or corporate applications when using a large format system.

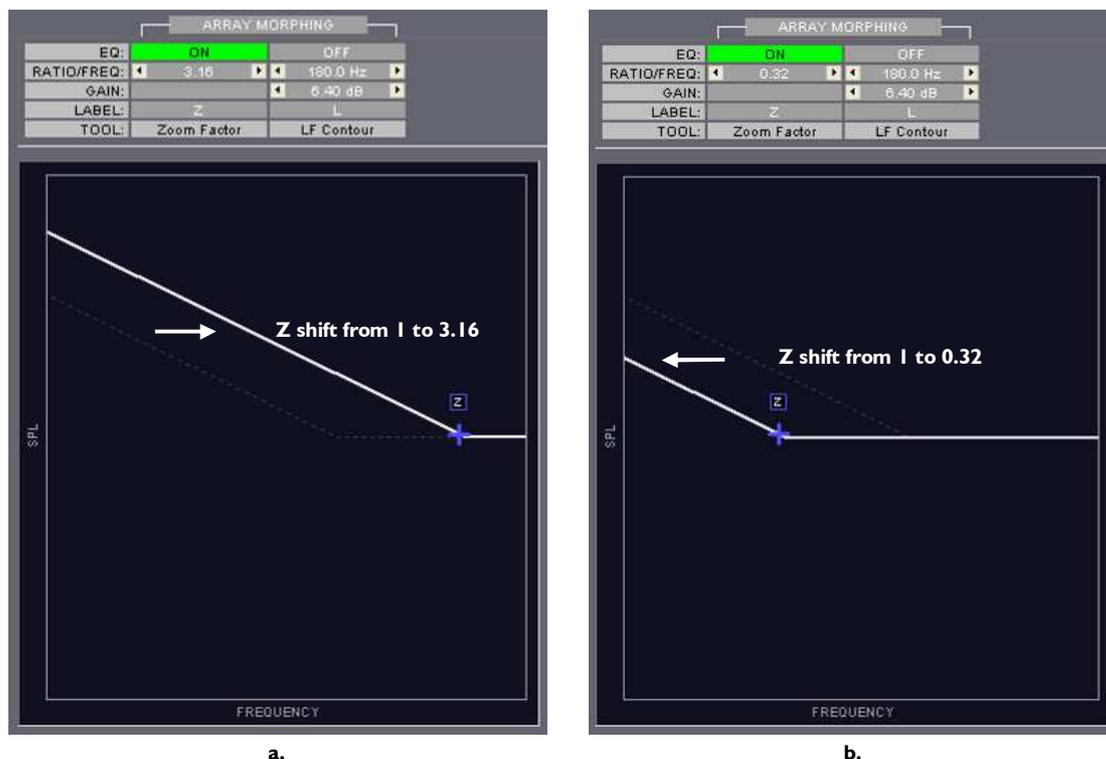


Figure 26: ZOOM FACTOR setting

## LF CONTOUR

The LF CONTOUR tool can be used either as an additional refinement of the ZOOM FACTOR settings or as an alternate way to address the LF response of a line source array.

1. In the **LF Contour** menu, click on the **ON/OFF** key and select **ON**: the LF CONTOUR tool is turned on and the key color turns **green** (see Figure 27).
2. Set the **GAIN** parameter (between -15 and +10 dB at 0.1 dB resolution) by clicking on the side cursors, or keyboarding the value, or shifting vertically the **L** cross on the curve (Figure 27a).
3. Set the **FREQ** parameter (between 35 and 180 Hz at 1 Hz resolution) by clicking on the side cursors, or keyboarding the value, or shifting horizontally the **L** cross on the curve (Figure 27b).

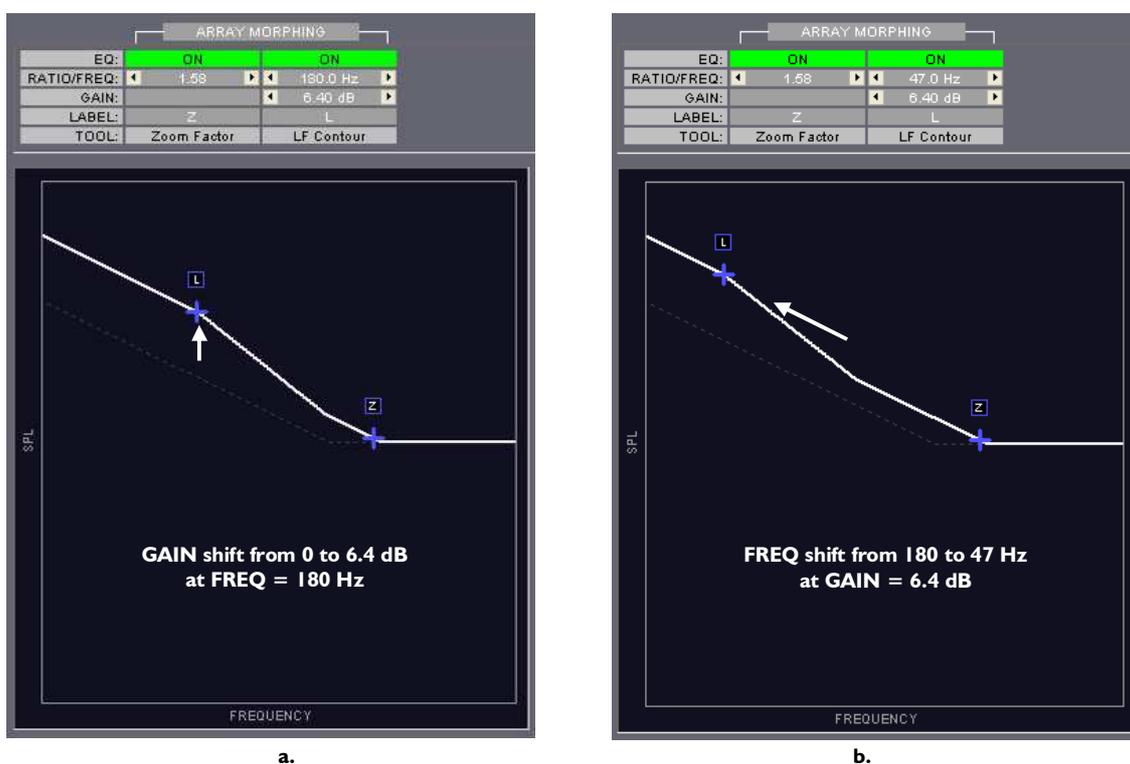


Figure 27: Setting the **FREQUENCY** and **GAIN** parameters

**Notes:** When using the side cursors obtain larger variation steps by pressing the **SHIFT** key. The parameter values can be modified before the **ON/OFF** key is turned **ON**.

### 6.5.2 EQ SECTION

The EQ SECTION is a mini EQ station composed of 2 parametric IIR filters (1-2) for room acoustic equalization and 3 linear phase FIR plateau filters (3-5) for air absorption compensation (see Figure 28).

The **EQ SECTION** menu shows the parameter settings for the five filters labeled as **1 to 5** while the **curve window** features the resulting magnitude transfer function (in dB) in the frequency domain (Hz, logarithm scale) for each filter (thin curves) and their summation (thick red curve). The magnitude scale is settable by using the **scaling cursors**.



Do not confuse the types of the curves presented in the ARRAY MORPHING section and in the EQ SECTION. The first one is an acoustic frequency response curve while the second one is a transfer function curve.

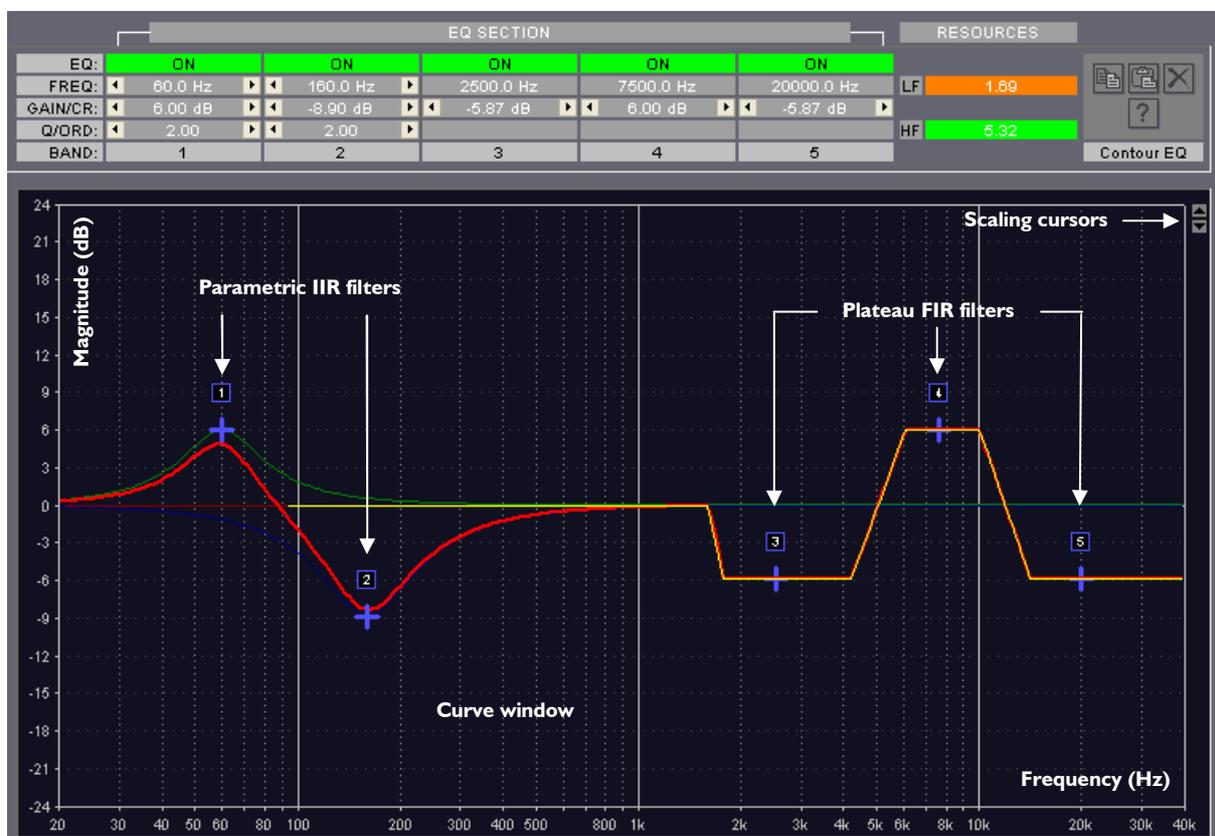


Figure 28: EQ section

## IIR filters 1 and 2

1. In menu **1** or **2**, click on the **ON/OFF** key and select **ON**: the filter is turned on, the key color turns **green**, and a blue cross labeled as **1** or **2** is displayed into the **curve window** (see Figure 28).
2. Set the **FREQUENCY**, **GAIN**, and **QUALITY FACTOR (Q)** parameters by clicking on the side cursors, or keyboarding the value, or shifting cross **1** or **2** on the curve (right-click for **Q** setting).

The **FREQUENCY** parameter is settable between 20 Hz and 20 kHz at 1 Hz resolution.

The **GAIN** parameter is settable between -15 and +10 dB at 0.1 dB resolution.

The **Q** parameter is settable between 1 and 10 at 0.1 resolution.

**Note:** When using the side cursors, obtain larger variation steps by pressing the **SHIFT** key.

## FIR filters 3 to 5

1. In menu **3**, **4**, or **5**, click on the **ON/OFF** key and select **ON**: the filter is turned on, the key color turns **green**, and a blue cross labeled as **3**, **4**, or **5** is displayed into the **curve window** (see Figure 28).
2. Set the **GAIN** parameter by clicking on the side cursors, or keyboarding the value, or vertically shifting cross **3**, **4**, or **5** on the curve.

The **GAIN** parameter is settable between -15 and +6 dB at 0.1 dB resolution.

The **3**, **4**, and **5** flat filters respective frequency bandwidths are: 1.5-5 kHz, 5-12 kHz, and 12-40 kHz.

**Note:** When using the side cursors, obtain larger variation steps by pressing the **SHIFT** key. The parameter values can be modified before the **ON/OFF** key is turned **ON**.

## Scaling cursors

- ↔ Click on the top or bottom **scaling cursor** to set the magnitude interval to be displayed on screen from [-3 ; +3] to [-120 ; +120] dB.

### 6.5.3 Power RESSOURCES indicators

Setting **Z** > 1 and/or **GAIN** > 0 in the **Contour EQ** window will reduce the available power resources (**headroom**) for all loudspeakers connected to the **units** that are part of the corresponding **group**.

The minimum **headroom** (the most critical) among all these loudspeakers is displayed in dB for both **LF** and **HF** sections in the **RESOURCES** display (see Figure 29). This display will allow real-time monitoring the **system's** power resources in order to avoid damaging the loudspeakers.

**Note:** These data also include the **GAIN** set in the **control window** [6.6.3, **system resources** window].

For more visibility, the background color of each **headroom** cell acts as a loudspeaker power resource indicator. The color code is the following:

- **Green** = loudspeaker in the safe range (**headroom** > 2 dB).
- **Orange** = loudspeaker near the critical range ( $-2 \text{ dB} \leq \text{headroom} \leq 2 \text{ dB}$ ).
- **Red** = loudspeaker in the critical range (**headroom** < -2dB).



When modifying **Z** and/or **GAIN** values, ALWAYS verify that the **headroom** of the corresponding loudspeakers remain in the **green** range.

The **orange** color indicates a potential risk of sound distortion and the **red** color indicates a potential risk of serious loudspeaker damage. In both cases, the user may decrease the corresponding **Z** and/or **GAIN** values (e.g. increase the **headroom** value) until the **green** range has been reached.



The power resources values are not correlated with the real input signal but are calculated on the basis of a 10 dB crest factor pink noise signal rated at 0 dBu (-22 dBfs).

The power resources calculation remains available in the **offline mode**.



The AES/EBU input gain set for the LA-AES3 board is not taken into account in the calculation of the headroom in the **Show System Resources** and **Contour EQ** sections. If the AES/EBU input is selected, the actual headroom value is obtained by subtracting the AES/EBU input gain value to the headroom calculated by LA NETWORK MANAGER.



Figure 29: Headroom display in the RESOURCES section

### 6.5.4 Contour EQ menu

The **Contour EQ** menu features classical functionalities regarding the ARRAY MORPHING and EQ SECTION settings.

- ↪ In the **Contour EQ** window of a first **group**, click on the **copy** key to copy all settings of this first **group**.
- ↪ In the **Contour EQ** window of a second **group**, click on the **paste** key to paste all settings of the first **group** in the second **group** (the second **group** preceding settings will be overwritten).
- Note:** The **paste** function is available only if the **copy** function has been used in a preceding step.
- ↪ Click on the **reset** key to turn all filters off, set **Z** value to 1 and all **GAIN** values to 0.
- ↪ Click on the **help** key to edit the **ARRAY MORPHING White paper** [2.3].

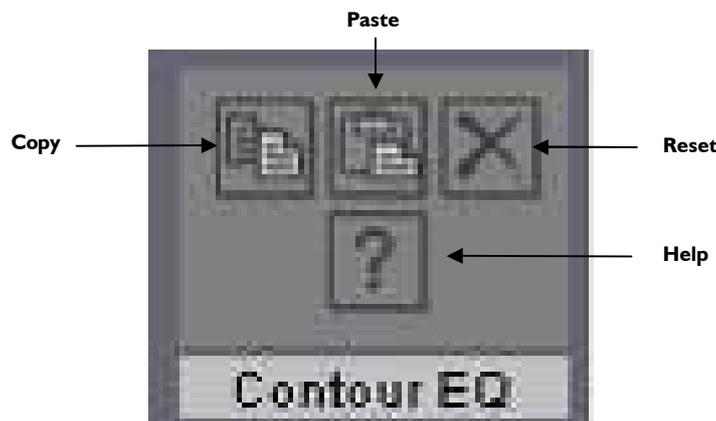


Figure 30: Contour EQ menu

## 6.6 Command toolbar

### 6.6.1 Overview

The **command toolbar** features **system file** management, L-NET Network connection, software option menus, and information about software.



Figure 31: The command toolbar

### 6.6.2 File menu

The **File** menu provides **system file** management.

Click on the **File** key to open the **File** menu.

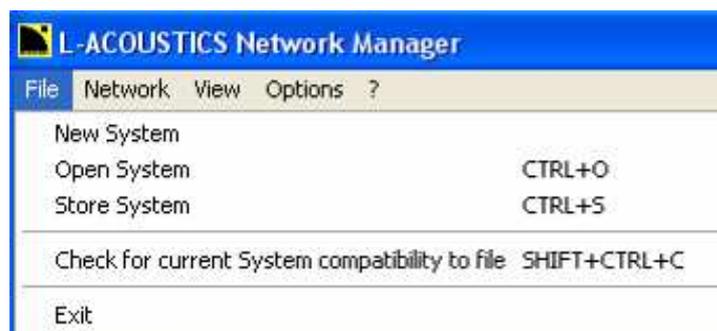


Figure 32: The File menu

### New System

This function edits a new **system** by choosing between three possible ways: creating (**offline**), opening (**offline**), or retrieving (**online**).

Click on the **New System** function and follow the instructions provided in [6.1.3].



This function will automatically cancel an eventual prior edited **current system**.

If a **physical unit** pertaining to a **group** has been disconnected from the L-NET Network when using the **New System** function, the **group and unit parameters** [6.4] will remain active into the **physical unit**.

### Open System

This function opens a **system** that was previously stored in a file so that it becomes the **current system**. This operation is available in both **offline and online modes**.

☞ Click on the **Open System** function, browse to select a **system file (.system)**, and click **OPEN**.



When a **current system** is already active, opening a **system file** is only possible if the **system** stored in it is compatible with the **current system**.  
If both **systems** are not compatible a conflict list is displayed [7.3.2].



A **preset** can be opened from a file only if it is part of a **user memory location** (1-10).  
If at least one **preset** of the **system** is part of a **factory memory location** (11-99) a message will prompt the user to select a **user memory location** in which each **preset** will be stored as the **system** is opened.

**Store System** This function stores the **current system** (including **group and unit parameters**) to a **system file**.

☞ Click on the **Store System** function. In the new window, browse to select the chosen directory location, keyboard the **system file** name, and click **SAVE**. The file will be saved into the chosen directory location.



A **preset** can be stored to a file only if it is part of a **user memory location** (1-10).  
If at least one **preset** of the **system** is part of a **factory memory location** (11-99) a message will prompt the user to store all **preset to user memory locations** before storing the **system**.

### Check for current System compatibility to file

This function checks if a system stored in a **system file** is compatible [7.3.2] or not with the **current system**.

☞ Click on the **Check for current System compatibility to file** function. In the new window, browse to select a **system file (.system)**, and click **OPEN**. If both systems are compatible the **The loaded system is compatible to the current system** message will be displayed. On the contrary case, a conflict list will be displayed [7.3.2].

### Exit

☞ Click on the **Exit** function to shutdown LA NETWORK MANAGER Software.



When working in the **online mode** all synchronized **physical units** will be disconnected but the **group and unit parameters** [6.4] will remain active into each one.  
The **physical units** will be about to be retrieved later by using the **Retrieve System From Network** function [6.6.3].



Consider a **physical unit** in the **standalone mode**. If some **group parameters** remain active in it, they cannot be seen and accessed via the front panel user interface, and they are not preset dependent (they will remain the same even if a new **preset** is loaded).  
Therefore, when recuperating a **physical unit** for a standalone application that has been previously used within a L-NET Network, L-ACOUSTICS® recommends using the **CLEAR GROUP PARAMETERS** function in order to clear all **group parameters** (refer to the **LA4 or LA8 User manual** [2.3]).

### 6.6.3 Network menu

The **Network** menu provides **system** transfer management between software and the L-NET Network.

☞ Click on the **Network** key to display the **Network** menu.

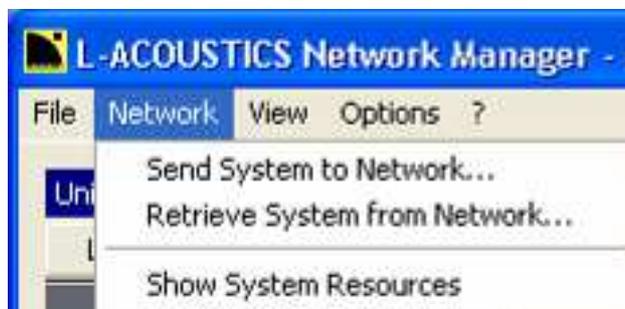


Figure 33: Network menu

#### Send System to Network...

This function sends the **virtual system** into the **physical units** connected to the L-NET Network.

☞ Click on the **Send System to Network...** function. In the new window, click **YES**: the **physical system** is scanned. In the second new window, click **OK**: the **virtual system** will be loaded into the connected **physical units** and the old **physical system** will be overwritten. The new **physical system** will become the **current system** and the **online mode** will be activated.



The **Send System to Network...** function works ONLY if:

- An L-NET Network is synchronized with the **computer** and the **computer and units IP Addresses** are correctly set (refer to [5] for instructions and to [7.3.1] for troubleshooting).
- The **virtual system** is compatible with the **physical system** (if both **systems** are not compatible a conflict list will be displayed [7.3.2]).



A **preset** can be sent to a **unit** only if it is part of a **user memory location** (1-10).

If at least one **preset** of the **system** is part of a **factory memory location** (11-99) a message will prompt the user to store all **presets** to **user memory locations** before sending the **system** to the Network.



The INPUT MODE parameter (ANALOG or AES/EBU) is independent of the **preset parameters** and thus will not be modified when sending the **system** to the **physical units**. Set this parameter directly on each unit's front panel before operating (refer to the **LA4 or LA8 User manual** [2.3]).

If the unit is fitted with the LA-AES3 digital audio input board (refer to the **LA-AES3 User manual** [2.3]), the INPUT MODE as well as the FALLBACK MODE, and AES/EBU IN GAIN parameters can be remotely set from LA AES3 MONITOR Software (refer to the **LA AES3 MONITOR Technical bulletin** [2.3]).

#### Retrieve System from Network...

This function retrieves the **physical system** so that it becomes the **current system**. The **online mode** is activated.

☞ Click on the **Retrieve System from Network...** function and click **YES**. The application will scan the **IP Address** range set in Figure 14 and a message will be displayed for each unit eventually not found in the range.



The **Retrieve System from Network...** function ONLY works if an L-NET Network is connected to the **computer** and if the **computer and units IP Addresses** are correctly set (refer to [5] for instructions and to [7.3.1] for troubleshooting).

This function will automatically cancel an eventual prior edited **current system**.

### Show System Resources

Any **Z** or **GAIN** value [6.5.1] modification in the **control window** or **Contour EQ window** will affect the available power resources (**headroom**) for the loudspeakers connected to the corresponding **output channel, unit, or group**. The **Show System Resources** function allows the user to control at all time if the **headroom** is large enough for each loudspeaker in the **current system**.

☞ Click on the **Show System Resources** function: the **System Resources** window opens.

The **System Resources** window displays the **headroom** in dB for each **output channel** in the **current system**. The **headroom** values are given for both LF and HF loudspeaker sections in both right columns (see Figure 34).

Group	Addr.	Preset/Unit	Output	LF Headroom (dB)	HF Headroom (dB)
KUDO	11	KUDO110_60	LF_A	2.69	X
			LF_A	2.69	X
			MF_A	X	X
			HF_A	X	6.32
	12	KUDO110_60	LF_A	1.69	X
			LF_A	1.69	X
			MF_A	X	X
			HF_A	X	5.32
SUB	1	SB118_60	SB_+	2.50	X
			SB_+	4.50	X
			SB_B	2.50	X
			SB_B	4.50	X
XT	21	12XTA_FR	LF_A	-2.11	X
			HF_A	X	5.89
			LF_B	-2.11	X
			HF_B	X	5.89

Show Resource Indicators Close

Figure 34: System Resources window

For more visibility, the background color of each **headroom** cell acts as a loudspeaker power resource indicator. The color code is the following:

- **Green** = loudspeaker in the safe range (**headroom** > 2 dB).
- **Orange** = loudspeaker near the critical range ( $-2 \text{ dB} \leq \text{headroom} \leq 2 \text{ dB}$ ).
- **Red** = loudspeaker in the critical range (**headroom** < -2dB).



When modifying **Z** and/or **GAIN** values, ALWAYS verify that the **headroom** of the corresponding loudspeakers remain in the **green** range.

The **orange** color indicates a potential risk of sound distortion and the **red** color indicates a potential risk of serious loudspeaker damage. In both cases, the user may decrease the corresponding **Z** and/or **GAIN** values (e.g. increase the **headroom** value) until the **green** range has been reached.

In the same way, each **unit** cell background color indicates the worse case among its four **output channels** and each **group** cell background color indicates the worse case among the **units** it contains.

**Example:** The worse case in the **KUDO** group occurs for the **LF** sections of **unit 12** which have turned **orange**. As a consequence, the **unit 12** and **KUDO** group cells also have turned **orange**. All **SUB** group cells show the **green** safe range. One has to increase the **XT** **LF** **headroom** as it has reached the **red** critical range.

☞ Select/unselect the **Show Resource Indicators** function (in the bottom of Figure 34) to display/hide the **headroom** color code in the **control window** (see Figure 35). This function is useful for real-time resources monitoring.

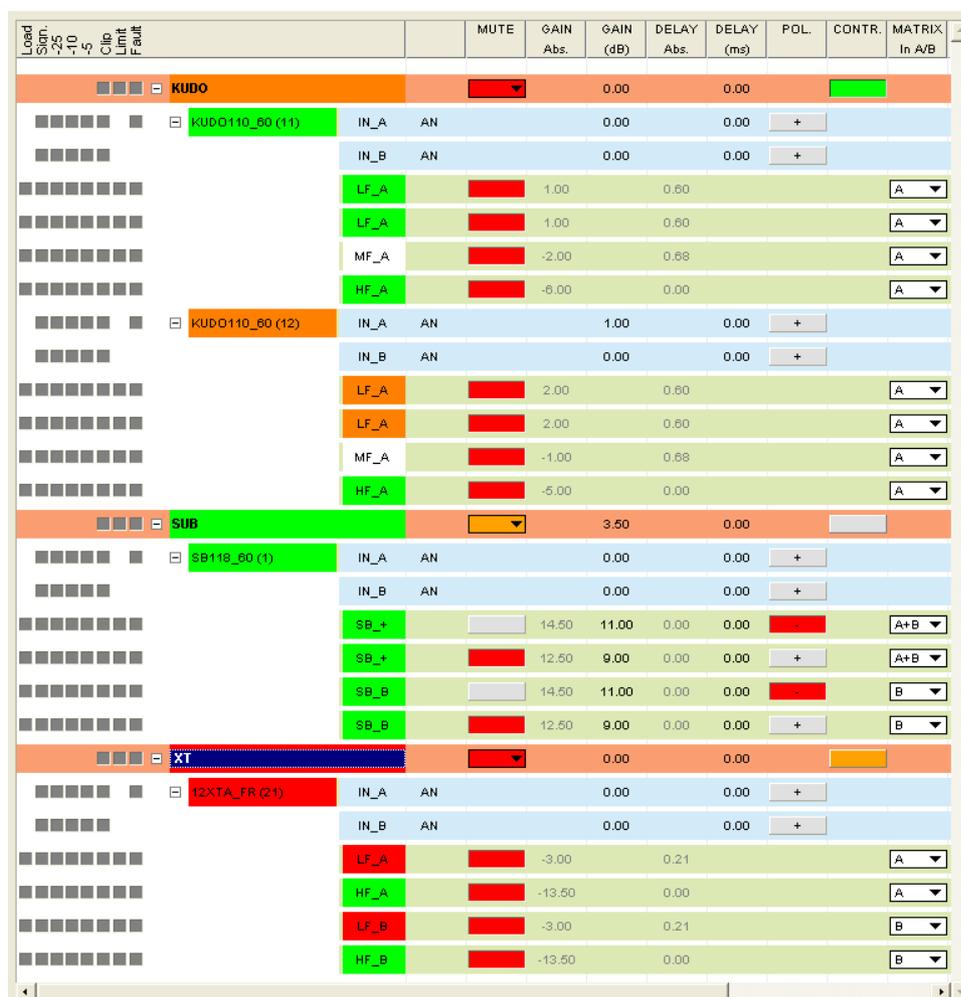


Figure 35: Resource indicators displayed in the control window

#### 6.6.4 View menu

The **View** menu allows showing/hiding the **unit and group parameters** in the **control window** [6.4].

☞ Click on the **View** key to display the **View** menu.



Figure 36: View menu

#### Expand Tree

☞ Click on the **Expand Tree** function to display the whole available information (**group and unit parameters**) for monitoring the **system**.

#### Collapse Tree

☞ Click on the **Collapse Tree** function to hide the **unit parameters**.

### 6.6.5 Options menu

The **Options** menu provides software user interface accessibility settings, maintenance operations, and **physical unit** state management.

☞ Click on the **Options** key to display the **Options** menu.



Figure 37: Options menu

#### Go to USER Mode / Go to ENGINEER Mode...

The **ENGINEER Mode** is dedicated to **system** creation and installation before the event performance. All the functions are accessible to:

- Create or modify a **system** setup in the **Units Over Network** and **System/Groups** windows.
- Modify the **group and unit parameters** in the **control window**.

☞ Click on the **Go to ENGINEER Mode...** function. If a password has been set, keyboard the password in the new window and click **OK**, then click **OK** in the second new window.

The **USER Mode** is dedicated to the **online** operations before and during a live show. The accessible functions are restricted:

- Creating a **system** or access to the **Units Over Network** and **System/Groups** windows is denied.
- Opening a **system** from a file is only possible if this **system** is compatible with the **current system** [7.3.2].
- Only the authorized **group and unit parameters** are accessible in the **control window**. The accessibility is set in the **ENGINEER Mode** (refer to the **Edit Visibility** function presented in the following).
- Returning to the **ENGINEER Mode** can be locked by password (refer to the **Other Settings...** function presented in the following).

☞ Click on the **Go to USER Mode** function.

**Note:** The current mode is labeled on the extreme right part of the **command toolbar** (see Figure 15).

## Edit visibility

This function allows setting each **group and unit parameter** accessibility (accessible or locked) in the **control window**. The settings are made in the ENGINEER Mode and the restrictions will apply in the USER Mode.

1. Activate the ENGINEER Mode by clicking on the **Go to ENGINEER Mode...** function presented above.
2. Open the **Edit Visibility** menu and click on the **User Level** function. The **parameter** cells are displayed in the **control window** with the following background color code (see also Figure 38):
  - **Green** background = the parameter will be **accessible** in the USER Mode.
  - **Gray** background = the parameter will be **locked** in the USER Mode.
3. Click on each **parameter** cell to set accessibility (**green** or **gray**).
4. Open the **Edit Visibility** menu and click on the **Off** function.
5. Activate the USER Mode by clicking on the **Go to USER Mode** function presented above. The accessible **parameters** will be displayed and the locked **parameters** will be hidden (see Figure 39).

**Notes:** Accessibility settings will uniformly apply for all **units** of all **groups**.

When a parameter has been locked by L-ACOUSTICS® the corresponding **EXT** cell has **gray** background. On the contrary case, the **EXT** cell has **green** background.



The **mute** function in the **group parameters** cannot be locked for **online** safety purposes.

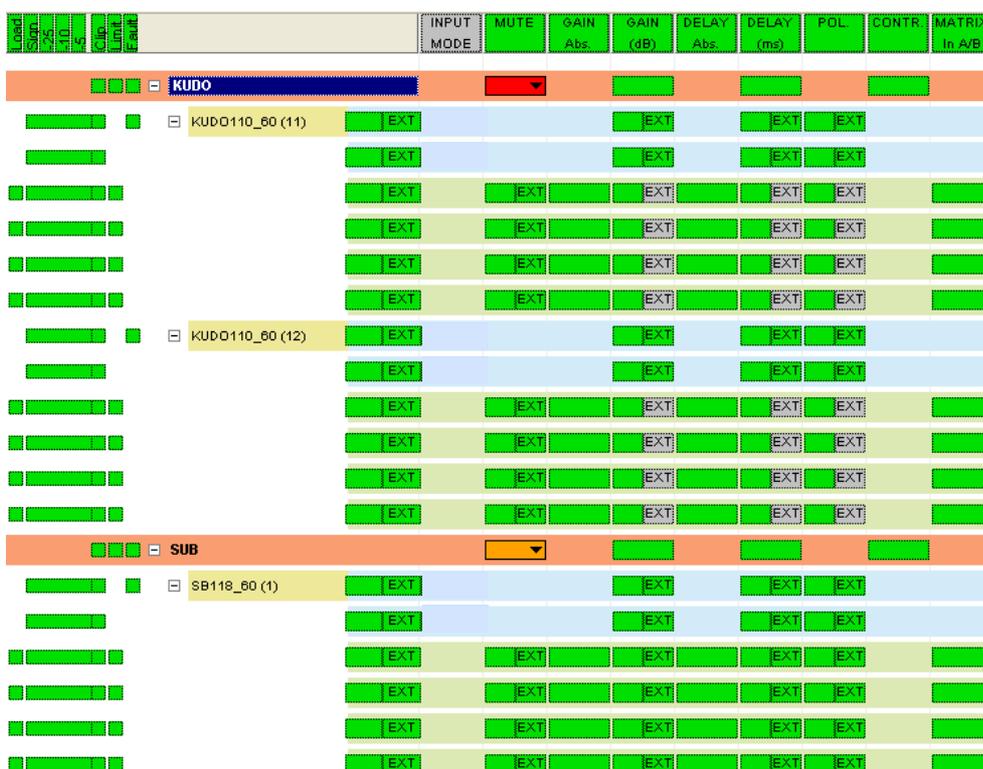


Figure 38: USER Level control window

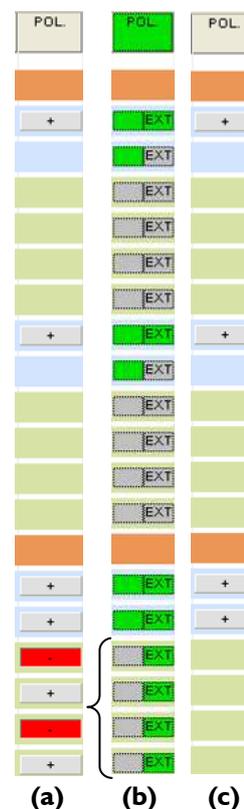


Figure 39: Hiding the output channel polarity:  
**(a) ENGINEER Mode**  
**(b) USER Level control**  
**(c) USER Mode**

### Lock Hardware Keys

- ☞ Open the **Lock Hardware Keys** menu and click on the **Lock all Units** or **Unlock all Units** function to respectively lock or unlock the front panels of all **physical units** in the L-NET Network.

**Notes:** This function is useful in the **online mode** but can be set in advance in the **offline mode** and then be sent to the **physical system** using the **Send System To Network** function [6.6.3].

When a **unit** is locked a **key** is displayed in the corresponding **No.** cell (see **unit 3** in Figure 17).

If trying to press any keys on a locked **unit's** front panel the DISPLAY LOCKED message is displayed on the LCD screen and the action has not effect, even for the **mute** function (refer to the **LA4 or LA8 User manual** [2.3]). This feature prevents any unintentional operation during an event performance, for example.

### Power Standby (online mode)

- ☞ Open the **Power Standby** menu and click on the **All Units Power up** or **All Units standby** function to respectively put all the physical units in the **operating or standby mode**.

**Notes:** Each **unit** state is indicated by the background color of its **IP Address** cell in the **Units Over Network** window [6.2]: the **green** color stands for the **operating mode**, the **blue** color stands for the **standby mode**.

When a **physical unit** is in the **standby mode** the four **Load LED** are lit (on both LCD screen and software interface) and the **Standby Mode** message is displayed on the LCD screen (refer to the **LA4 or LA8 User manual** [2.3]).

### Update (online mode)

This function is for updating the PRESET LIBRARY of the selected **physical units**. Refer to [7.2] for instructions about the update procedure.

	<p>FIRMWARE update must now be done using dedicated LA FIRMWARE UPDATER Software [7.1]. NO longer use LA NETWORK MANAGER for this operation.</p>
---	--

### Input Settings...

This function is not available on LA NETWORK MANAGER. It corresponds to the INPUT MODE function included in LA AES3 MONITOR Software (refer to the **LA AES3 MONITOR Technical bulletin** [2.3]).

### Other Settings...

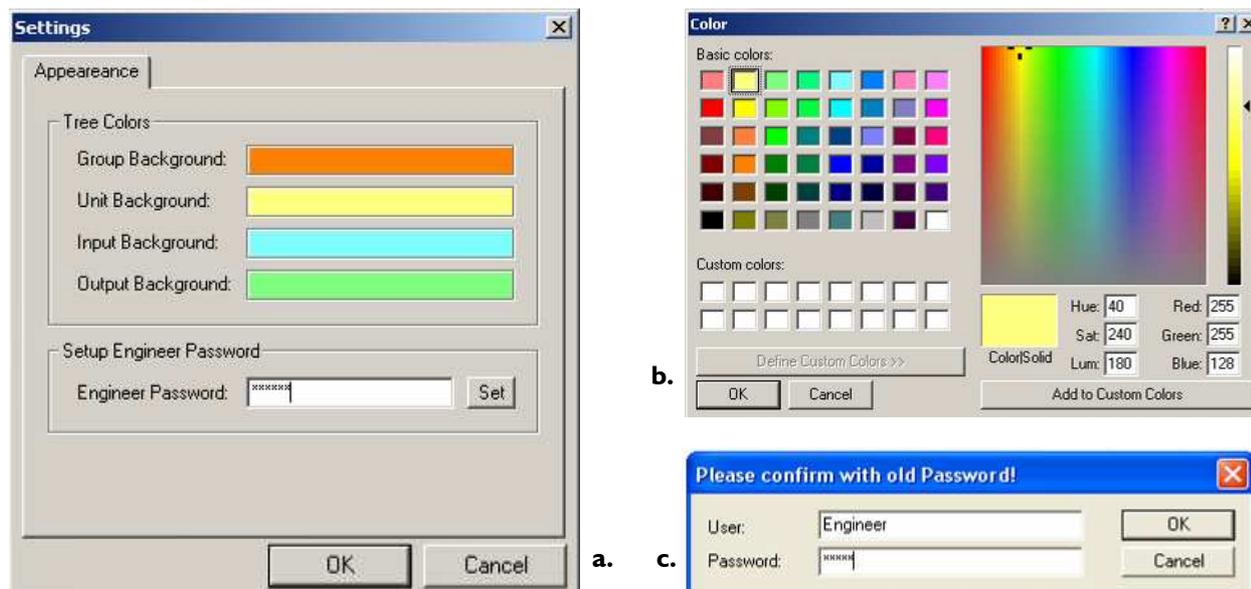
**The background color** of the different branches of the tree (**groups, units, input and output channels**) in the **control window** [6.4] can be customized by the user.

- ☞ Click on the **Other Settings...** function. In the **Settings** window (Figure 40a), click on the chosen background color in the **Tree Colors** menu. In the **Color** window (Figure 40b), set the chosen color and click **OK**. Click **OK** a second time in the **Settings** window.

**A password** can be set to secure access to the ENGINEER Mode thus preventing any **current system** modifications (refer to the **Go to USER Mode** function presented above).

- ☞ Click on the **Other Settings...** function. In the **Settings** window (Figure 40a), enter the chosen password in the **Setup Engineer Password** entry and click **Set**. In the **Confirm with old Password!** window (Figure 40c), enter the old password and click **OK**. Click **OK** in the new window. Click **OK** in the **Settings** window.

	<p>Do not to forget the password as it will not be removed in case of software re-installation.</p>
---	---



**Figure 40: The Settings, Color, and Confirm with old Password! windows**

### 6.6.6 ? menu

Displays information about software.

↪ Open the ? menu and click on the **About...** function: a window displays information. Click it to close.

## 6.7 Operational procedures

### 6.7.1 Saving/loading a system, a preset, or an output channel

Three levels are available to save data from LA NETWORK MANAGER user interface to the **computer** or load data from the **computer** to LA NETWORK MANAGER user interface:

#### System (.system file)

- ↪ The **current system** displayed on the software user interface can be saved to a **system file (.system)** using the **Store System** function [6.6.2].
- ↪ The **system** contained in a **system file (.system)** can be loaded to the software user interface (to become the **current system**) by using the **Open System** [6.6.2] or **Open a System File** [6.1.3] function.

**Reminder:** A **system** is a set of **units** arranged into **groups**, and featuring:

- **For each unit:** the **IP Address**, **unit type**, **preset**, and **unit parameters** (**gain**, **delay**, and **polarity** settings for the **2 input** and **4 output channels**, as well as **mute** and **matrix** for the **4 output channels**).
- **For each group:** the **group parameters** (**mute/solo**, **gain**, **delay**, and **contour EQ** settings) uniformly allocated to all **units** in the **group**.

#### Preset (.preset file)

- ↪ A **preset** displayed on the software user interface can be saved to a **preset file (.preset)** using the **Store Preset to file...** function [6.2.2].
- ↪ The **preset** contained in a **preset file (.preset)** can be loaded to the software user interface (to become one of the **current presets**) by using the **Load Preset from file...** function [6.2.2].

**Reminder:** A **preset** is a complete set of parameters to drive two **input and four output channels**. It contains the **EQ** and **L-DRIVE parameters** as well as the **unit parameters** (**gain**, **delay**, and **polarity** settings for the **2 input and 4 output channels**, as well as **mute** and **matrix** for the **4 output channels**).

### Output channel (.channel file).

- ↪ An **output channel** displayed on the software user interface can be saved to an **output channel file (.channel)** using the **Store channel to file...** function [6.7.2].
- ↪ The **output channel** contained in an **output channel file (.channel)** can be loaded to the software user interface (to become part of a **current preset**) by using the **Load channel from file...** function [6.7.2].

**Reminder:** An **output channel** is a signal path and processing, within a **unit**, from the **DSP** to an **output connector**. It is driven by the **output channel parameters** (**mute, gain, delay, polarity, matrix, EQ, and L-DRIVE**).

### 6.7.2 Custom preset creation

A **custom preset** is a **preset** in which at least one **output channel** has been replaced by the user. As a **custom preset** is a combination of several factory **presets** it will be considered as part of the **CUSTOM preset family**.

Creating a **custom preset** typically consists in exporting an **output channel** from a **source unit** and to load it back into a **target unit** (intended to contain the **custom preset**). The following steps show such a procedure in the **offline mode**:

1. **Create a offline system:** In the **File** menu, select **New System**. In the popup window, select **Create an Offline System** and click on the **OK** key to confirm.

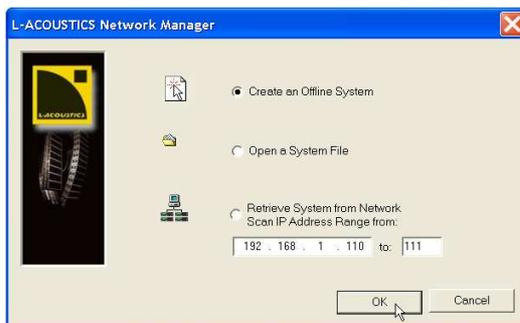


Figure 41: Creating an offline system

2. **Create the target unit and the source unit:** In the **Units Over Network** window, right-click on any cell and select the **Add new Units...** function. In the **Add new Units to the System** popup window, click on the **Type** cell and select LA4 or LA8 (a minimum of two **units** will need to be created in order to select one as the **target unit** and one as the **source unit**). Click on the **Preset** cell of any **unit** to load a PRESET LIBRARY (example: LA4 PRESET LIBRARY).

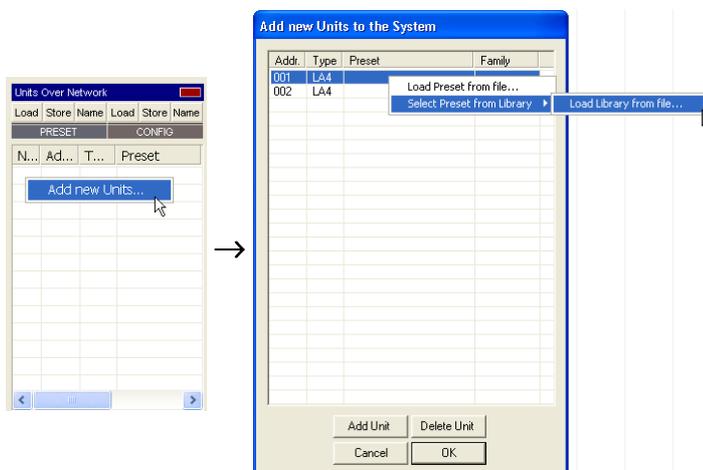


Figure 42: Creating units

- In each unit, select a preset from the library menu:** Click on the **Preset** cell of the **target unit**, click on the **Select Preset from Library** function, and select the desired **target preset** (example: [KIVA]). In the same way, select the **source preset** in the **source unit** (example: [SB118\_100]). Click on the **OK** key to confirm. The selected presets will now be displayed in the **Units Over Network** window.

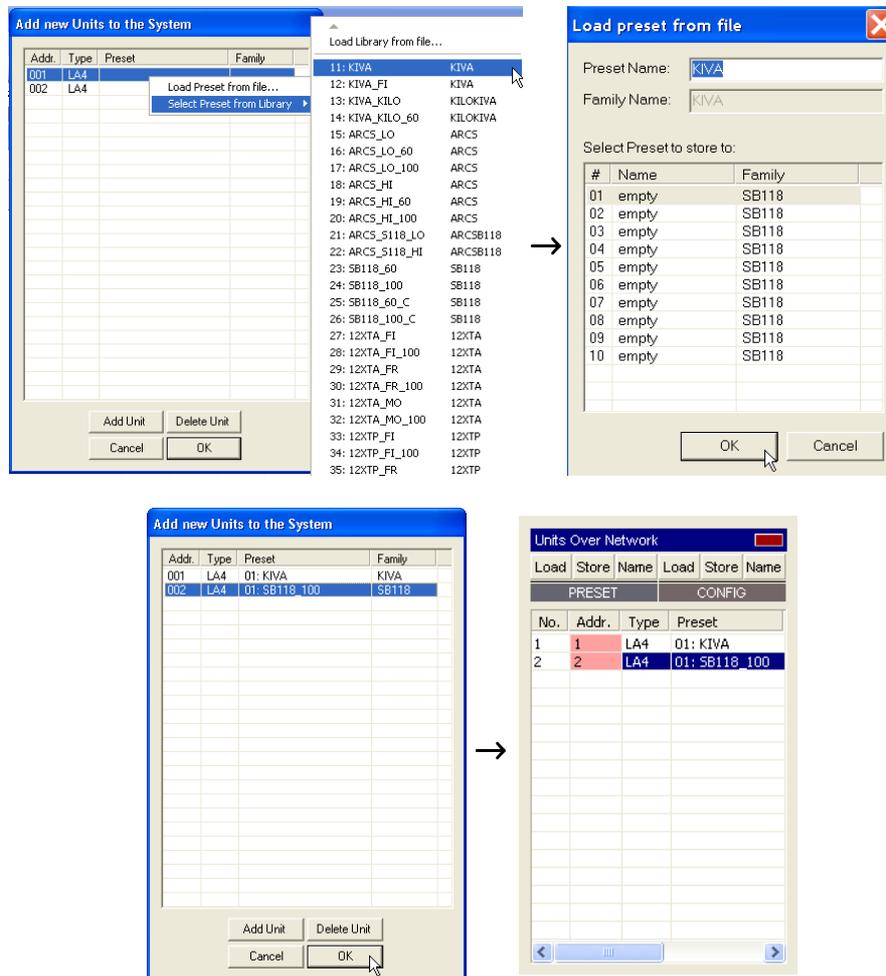


Figure 43: Preset selection

- Place both units into the same group:** Select and drag the **target unit** [KIVA] into the **System/Groups** window (a **group** will automatically be created). Select and drag the **source unit** [SB118\_100] into the same **group** as the **target unit**. Open the **View** menu and select the **Expand Tree** function to display the **output channels** of both units.

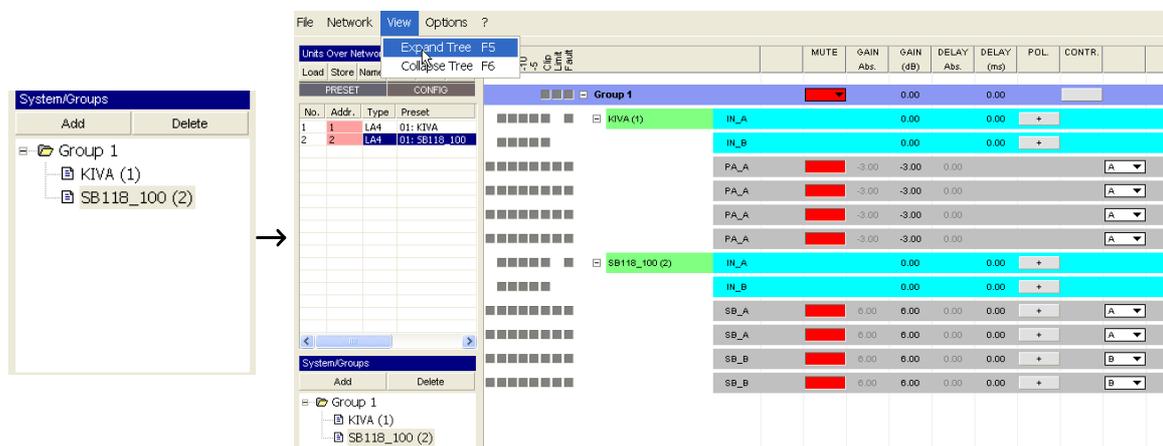
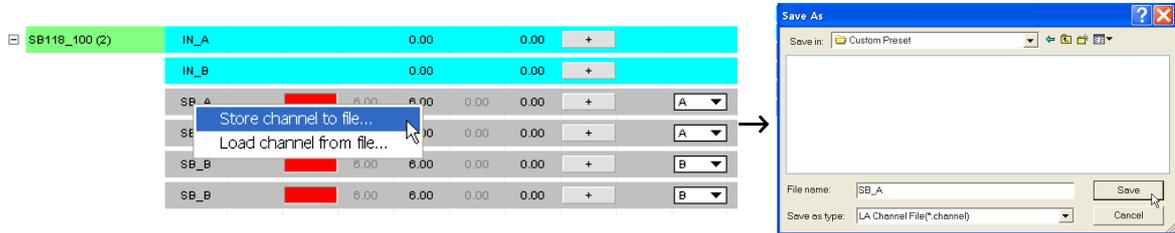


Figure 44: Placing units in a group

- Export the desired output channel from the source unit to create a .channel file:** Place the mouse arrow on the desired **output channel** of the **source unit** (example: SB\_A), right-click to display the **output channel** menu, click on the **Store channel to file...** function, browse to select a directory and validate. The current **output channel** is now stored to the selected directory including the **output channel parameters**.

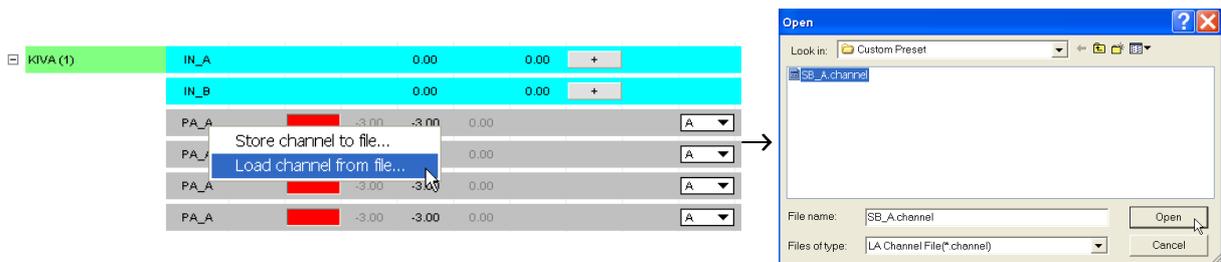
**Note:** The conditions required to export a **channel** are given at the end of this section.



**Figure 45: Channel file creation**

- Import the output channel from the selected folder to the target unit:** Select the desired **output channel** on the **target unit** (example: PA\_A), right-click to display the **output channel** menu, click on the **Load channel from file...** function, browse to select the prior saved **output channel file** and validate. The **output channel** is now imported in place of the current one and thus overwrites the previous **output channel parameters**. The **custom preset** is now created.

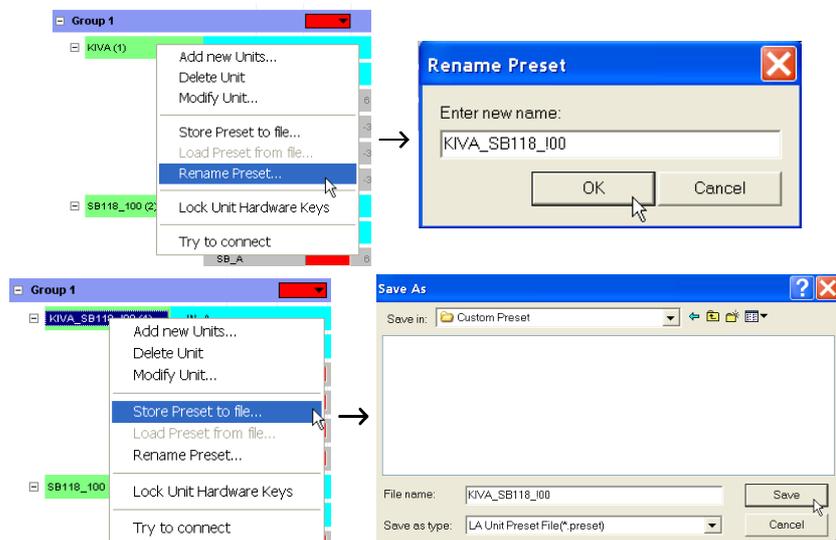
**Note:** The conditions required to import a **channel** are given at the end of this section.



**Figure 46: Importing an input channel**

- Repeat steps 5 and 6 for any other **output channels** to be imported into the **target unit**.
- Save the custom preset from the target unit to create a .preset file:** Right-click on the **target unit**, select the **Rename preset...** function, type in the desired preset name **in the limit of 16 characters** (only 13 characters will be displayed on the interface), and click **OK** to confirm.

Click on the **Store Preset to file...** function, type in the desired file name (it is possible to name the **.preset** file with as many characters as needed to best describe the preset), browse to select a directory and validate. The **custom preset** is now stored to the selected directory including the **preset parameters**.



**Figure 47: Preset file creation**

9. **Put the system in the online mode:** Open the **Network** menu and click on the **Retrieve System from Network...** function.



After having disconnected a unit and having modified it by loading a new preset or a new output channel, NEVER use the **Try to Connect** function to put the unit in the online mode. In doing so, some parameters will NOT be updated into the physical unit which could result in possible speaker damage.

10. **Load the custom preset into the physical unit:** Once the **system** is **online**, right-click on the **target unit**, click on the **Load Preset from file...** function, browse to select the **.preset** file containing the **custom preset**, and validate.

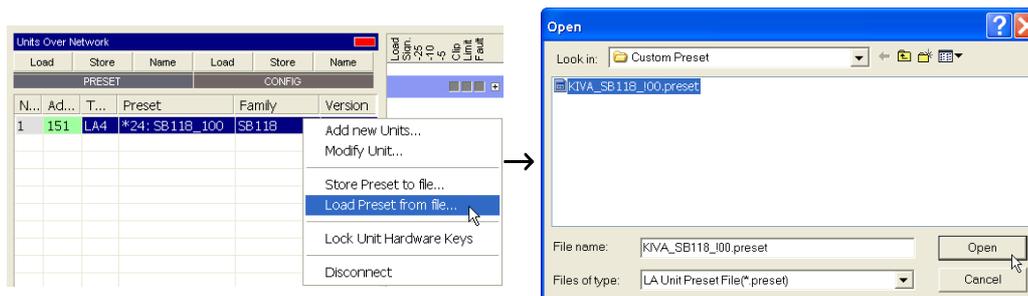


Figure 48: Loading a custom preset into a physical unit

For compatibility purposes, it is **ONLY** possible to EXPORT:

- **PA channels**, except those coming from a **preset** of the **KILOKIVA family**.
- **SB channels**, except those coming from a **cardioid preset**.



It is **ONLY** possible to IMPORT an **output channel** in place of a:

- **PA channel** (including a **channel** part of a **preset** of the **KILOKIVA family**).
- **SB channel**, except if it is part of a **cardioid preset**.
- **LF / HF channel couple** located in **OUT1/OUT2** (both **channels** will automatically be replaced by the same imported **output channel**; in a second step it will be possible to replace one of them).

The **Load channel from file...** function **ONLY** applies:

- For a **preset** located in a **user memory location** (1-10).
- If the **output channel** to import is compatible with the **target preset** (e.g. both have been extracted from PRESET LIBRARIES with version numbers featuring same first digit).  
**Example:** 2.0 is compatible with 2.2 but not with 1.3.
- In the **offline mode**.



When importing at least one **output channel** in a **factory preset**, the **preset family** is automatically renamed as **CUSTOM**. In this case, the compatibility and safety rules related to the **factory preset family** names no longer apply. Therefore, it is **strongly recommended** to **give explicit name** to any **custom preset** (in the limit of **16 characters**).



**Example:** When inserting a **SB28 channel** in the first **output channel** of a **factory [SB118\_60] preset**, rename the **custom preset** as **[28\_60-3x118\_60]** to prevent the user from connecting a **SB118 enclosure** on the first **channel** (which may result in speaker over-excursion or thermal overstep).

## 7 CARE AND MAINTENANCE

### 7.1 FIRMWARE update

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Each **physical unit** is managed by FIRMWARE (refer to the **LA4 or LA8 User manual** [2.3]). Two **firmware files** exist and are respectively included in the **LA4 FIRMWARE Pack** and **LA8 FIRMWARE Pack** [2.3].

↳ To update FIRMWARE in a **unit** or a set of **units**, follow the instructions provided in the **LA4-8 FIRMWARE UPDATE Technical bulletin** included in the packs.

	FIRMWARE update must be done using LA FIRMWARE UPDATER Software. NEVER use LA NETWORK MANAGER for this operation. ALWAYS use units running the same FIRMWARE version within a system.
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### 7.2 PRESET LIBRARY update

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In each **physical unit** is stored a complete onboard **factory preset library** to cover all principal L-ACOUSTICS® **loudspeaker system** configurations.

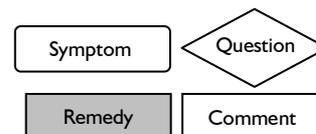
Two **preset library files** exist and are respectively included in the **LA4 and LA8 PRESET LIBRARY Packs** [2.3]. For more information, refer to the **LA4 or LA8 User manual** [2.3] and to the **LA4-8 PRESET LIBRARIES User manual** (included in both packs).

↳ To update the PRESET LIBRARY in a **unit** or a set of **units**, follow the instructions given in the **LA4-8 PRESET LIBRARIES UPDATE Technical bulletin** (included in both packs).

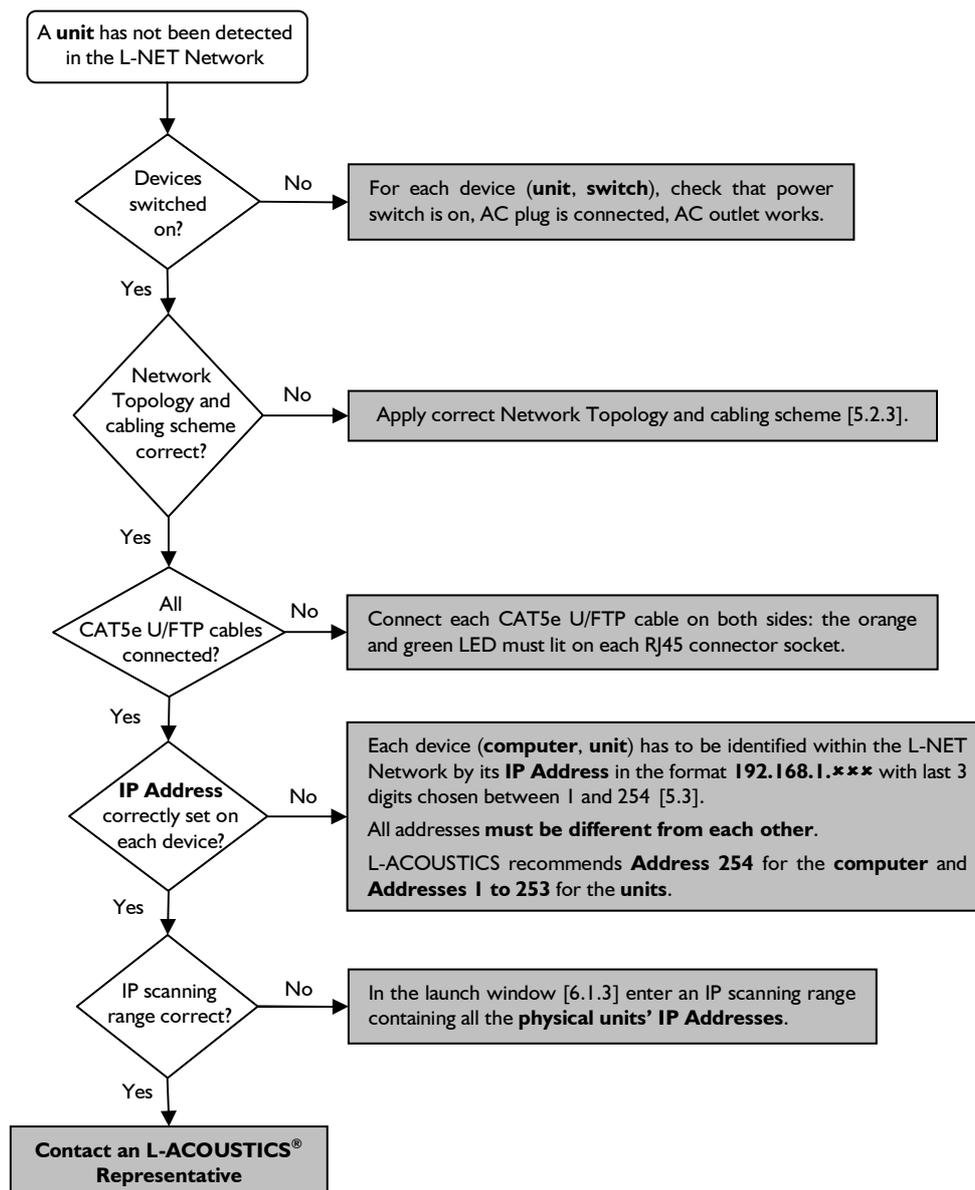
## 7.3 Troubleshooting

This section provides flowcharts to assist the user for eventual troubleshooting operations with LA NETWORK MANAGER Software. The keys for interpretation of the flowcharts are shown on the right.

**Note:** The flowcharts cannot cover every possible scenario the user may encounter.



### 7.3.1 A unit has not been detected in the L-NET Network



### 7.3.2 Conflict list

Two **systems** are compatible if they contain the same number of **units** with each corresponding pair having the same **IP Address**, **unit type**, and **preset family**. If two **systems** are not compatible a conflict list is displayed with four possible messages:

#### Not found in actual system!

Some **units** (identified by their **IP Addresses**) defined in the **system file** are not present in the **current system**.

#### Not found in file system!

Some **units** (identified by their **IP Addresses**) defined in the **current system** are not present in the **system file**.

#### Wrong Unit Type!

Two **units** of same **IP Address** are present in both **current system** and **system file** but their **unit types** do not match (**LA4** vs. **LA8**).

#### Wrong Family!

Two **units** of same **IP Address** and same **unit type** are present in both **current system** and **system file** but their **preset families** do not match.

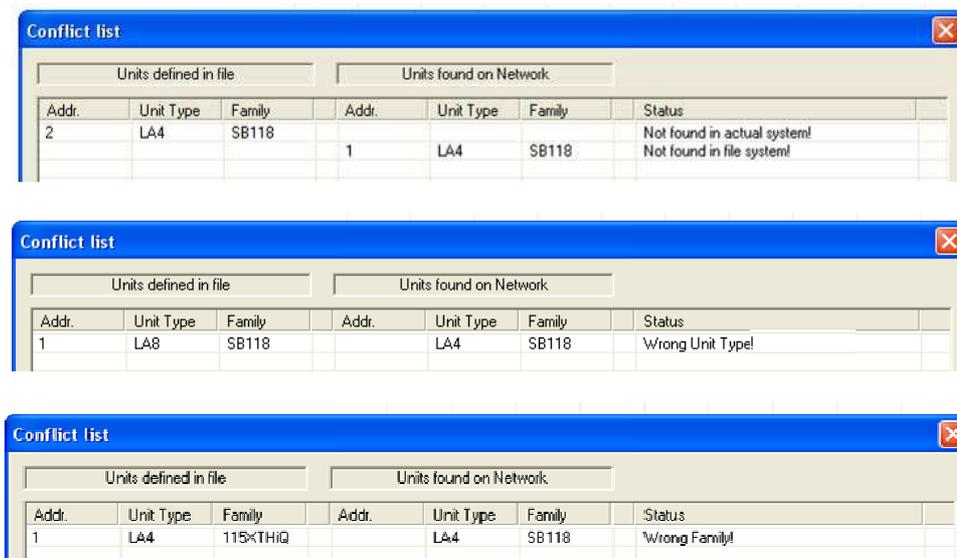
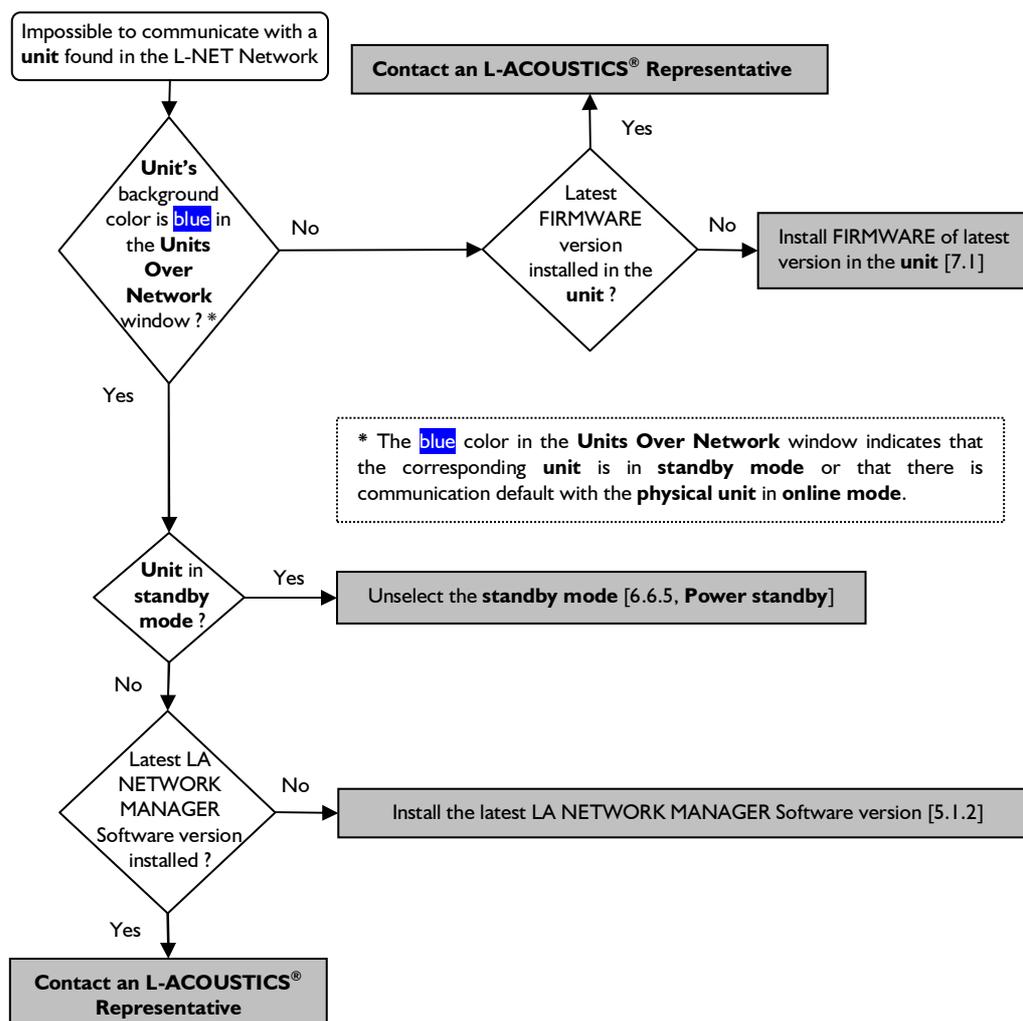


Figure 49: The four conflict messages

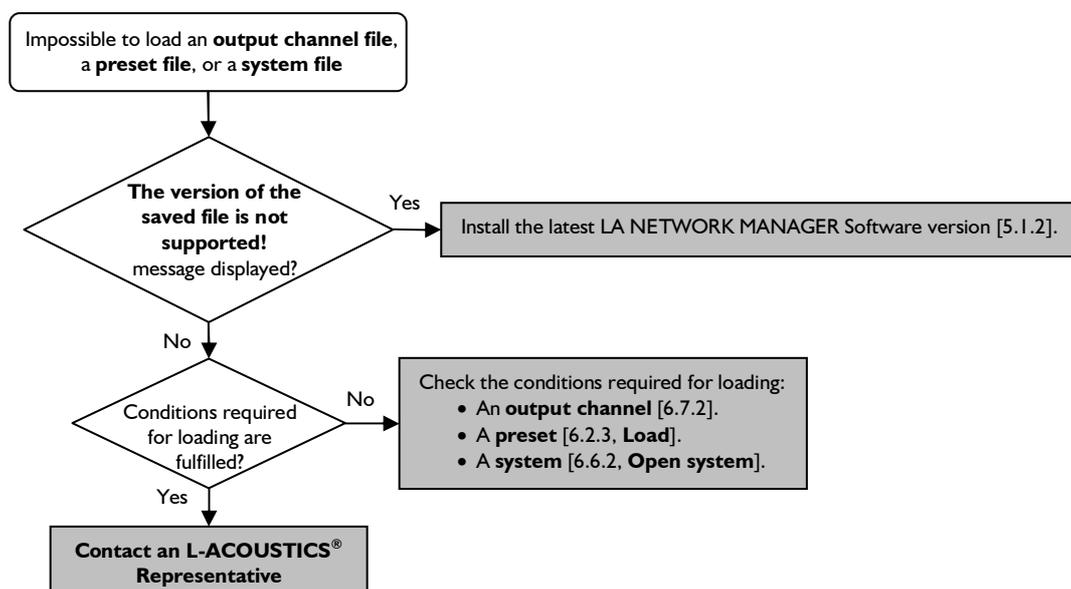
The conflict messages can be displayed when using the **Check for current System compatibility to file**, **Open system** [6.6.2], or **Send System to Network** [6.6.3] function. For the latter one, the **system file** is the **virtual system** and the **current system** is the **physical system**.

The conflict messages can also be displayed when using the **Try to Connect** [6.2.2] or **Load** [6.2.3] function.

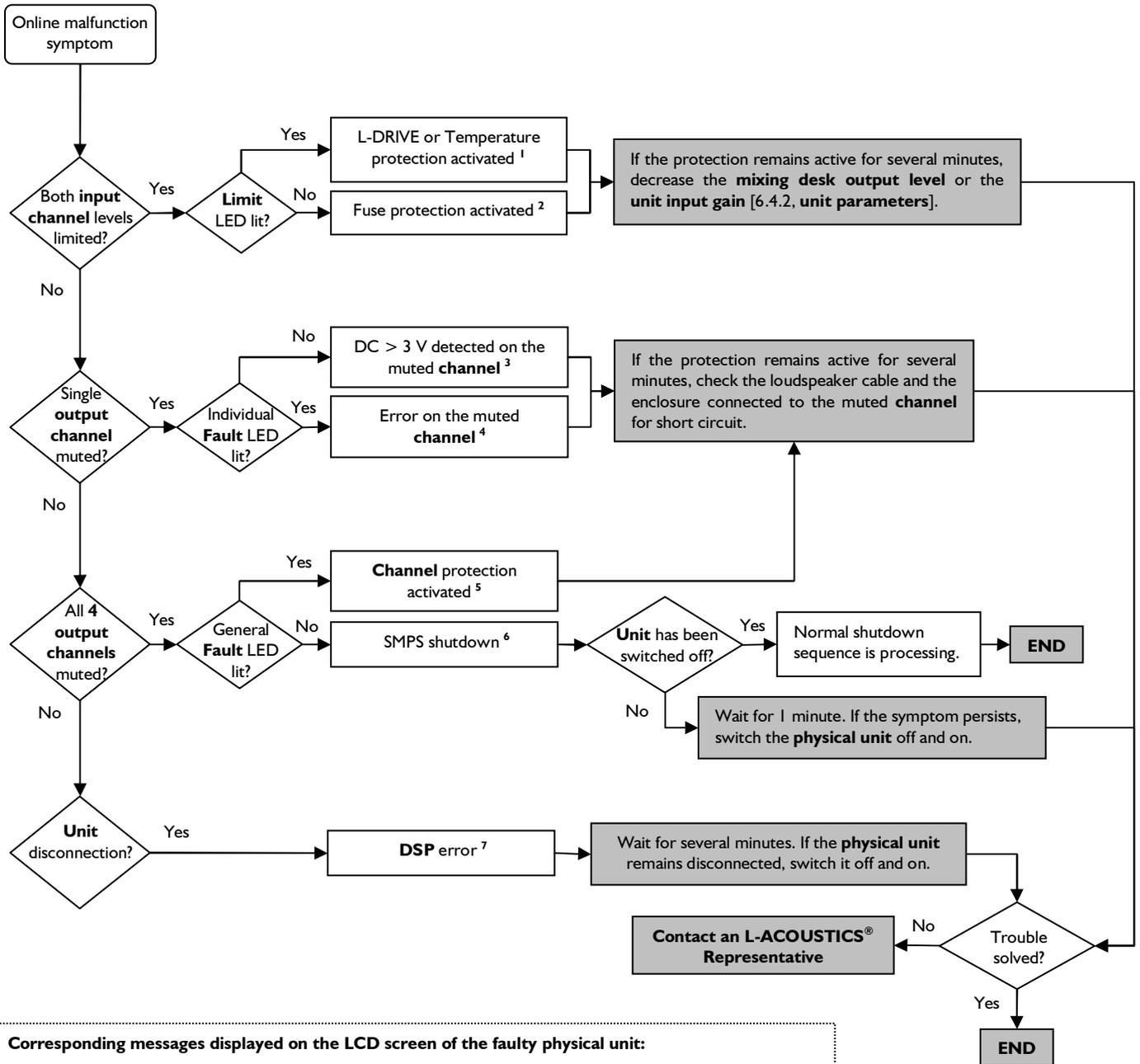
### 7.3.3 Impossible to communicate with a unit found in the L-NET Network



### 7.3.4 Impossible to load an output channel, a preset, or a system



**7.3.5 Online malfunction symptom**



Corresponding messages displayed on the LCD screen of the faulty physical unit:

- <sup>1</sup> Signal Attenuation
- <sup>2</sup> Fuseprotect
- <sup>3</sup> DC : Channel \*
- <sup>4</sup> Error on Channel \*
- <sup>5</sup> Protect : CH \*
- <sup>6</sup> Waiting SMPS
- <sup>7</sup> DSP Error → AMP OFF

Refer to the LA4 or LA8 User manual [2.3] for full information about physical unit protection systems.

## 8 SPECIFICATIONS

<b>Operating system</b>	Microsoft® Windows® XP®, Vista®, Seven®, or higher
<b>RAM</b>	Minimum 512 Mo
<b>Monitor</b>	800 x 600, 24 bits, color
<b>Network card</b>	100 Mbps Ethernet
<b>Network cabling</b>	Straight-through Ethernet cable, CAT5e U/FTP or higher category Maximum length: 100 m/328 ft
<b>Units</b>	L-ACOUSTICS® LA4 and LA8 amplified controllers (units of different types can be connected within the L-NET Network)
<b>Switch (for Star or Hybrid topologies)</b>	Minimum 100 Mbps with Auto MDI/MDIX functionality

## 9 GLOSSARY

**Audio source** Device providing low voltage audio signal to be connected to a **unit's input connector**. Examples: mixing console or EQ device.

**Channel label** Identification information regarding each **input and output channel**. The **channel label** is composed of the **channel type** and the **matrix** setting. It is displayed on the **input and output channel bars** as well as on the main screens of the **physical units**.

**Channel type** For an **input channel**: **IN** label.  
For an **output channel**: Type of transducer to be driven by the **output channel**. The **channel type** is labeled in the corresponding **output channel bar** as follows:

- PA** Passive enclosure
- LF** Low frequency transducer part of a 2 or 3-way enclosure
- MF** Mid frequency transducer part of a 3-way enclosure
- HF** High frequency transducer part of a 2 or 3-way enclosure
- SB** Subwoofer enclosure set in standard configuration
- SR** Subwoofer enclosure set in reversed configuration for **cardioid** applications

**Compatible systems** Two **systems** formed of the same number of **units** with each corresponding pair featuring the same **IP Address**, **unit type**, and **preset family**.

**Contour EQ** **WST® loudspeaker system** frequency response setting tool applying uniformly for all **units** of a selected **group**.

**Current preset** **Preset** loaded in a **unit**.

**Current system** **System** displayed in the LA NETWORK MANAGER user interface. The **current system** can be either a **physical system** or a **virtual system**.

**Current unit** **Unit** displayed in the LA NETWORK MANAGER user interface.

**Custom preset** **Preset** in which at least one **output channel** has been replaced by the user. The resulting **preset** being a combination of several factory **presets** it will be considered as part of the **CUSTOM preset family**.

**Daisy-chain topology** Network cabling scheme connected in series.

**DSP** Digital Signal Processor.

**Ethernet card** **Computer** peripheral device for physical connection to the L-NET Network.

**FIR** Finite Impulse Response. Filter algorithm embedded in the DSP card of the **LA4 and LA8 physical units**.

**FIRMWARE** Program installed in a **physical unit** to manage the **unit's** internal components (LCD screen display, preset flash memory, L-NET Network path, **DSP**, and Switch Mode Power Supply).

**Firmware file** Executable file named as **run.exe** containing the **physical unit's** **FIRMWARE** program source. Two **firmware files** exist and are respectively included in the **LA4 FIRMWARE Pack** and **LA8 FIRMWARE Pack** [2.3].

**Full duplex** Network protocol featuring bi-directional data transmission between the **computer** and the connected **physical units**.

**Group** Set of **units** sharing the same **group parameters**.

**Group bar** Horizontal graphic bar located in the **control window** for **group parameters** visualization and settings.

**Group parameters** **Mute/solo**, **gain**, **delay**, and **contour EQ** parameters applying for all **units** of a selected **group**. The **group parameters** can be set in the selected **group bar** located in the **control window**.



**Headroom** Difference between the maximum power level a loudspeaker can support and the current level. The Headroom is expressed in dB and can be negative if the maximum level has been overstepped (which may cause serious loudspeaker damage).

**Hybrid topology** Network cabling scheme including both **daisy-chain** and **star** topologies.

**IIR** Infinite Impulse Response. Filter algorithm embedded in the DSP card of the **LA4** and **LA8** physical units.

**Input channel** Signal path and processing, within a **unit**, from an **input connector** to the **DSP**. Two **input channels** are available on each **unit**: **IN A** and **IN B**. Each **input channel** is driven by the input channel parameters displayed in the corresponding input channel bar.

**Input channel bar** Horizontal graphic bar located in the **control window** for **input channel parameters** visualization and settings.

**Input channel parameters** **Gain**, **delay**, and **polarity** settings that apply for a selected **input channel**. Some parameters are locked by L-ACOUSTICS®. The other ones can be set in the corresponding **input channel bar**.

**Input connector** Female XLR or RJ45 socket located on a **physical unit's** rear panel and allowing connection with an **audio source**.

**IP Address** Internet Protocol Address to identify each device (**computer** or **unit**) within the L-NET Network. The usable **IP Address** format is **192.168.1.\*\*\*** with **\*\*\*** set between **1** and **254**.

**L-DRIVE** Transducer protection system embedded in a **physical unit**. It provides a dual analysis of both signal intensity and voltage in real-time and RMS. Under extreme conditions, when component membranes reach the over-excursion zone or if the coil ensemble temperature reaches a critical point, L-DRIVE is activated and acts as a power regulator.

**L-NET Network** Ethernet network in which a set of **physical units** is synchronized with a **computer** running LA NETWORK MANAGER Software.

**Line source array** **Loudspeaker system** arranged in the form of a vertical or horizontal array and respecting the five **WST**® criteria.

**Loudspeaker system** Set of L-ACOUSTICS® loudspeaker enclosures driven by a set of **units** eventually connected to an L-NET Network.

**Matrix** Parameter selecting the way an **output channel** is driven by the **A** and/or **B** input channels.

**Memory location** Allocated space in a **physical unit's** flash memory to store a **preset**. Each unit contains **10 user memory locations** (1-10) to store user-modified **presets** and **89 factory memory locations** (11-99) containing the non-modifiable **preset library**.

**Offline mode** **Computer** running workflow in which the **computer** is not synchronized with the L-NET Network.

**Online mode** **Computer** running workflow is in which the **computer** is synchronized with the L-NET Network.

**Operating mode** **Physical unit** state in which the **unit** is synchronized with the L-NET Network and is operating or ready for operation (as opposed to the **standby mode**).

**Output channel** Signal path and processing, within a **unit**, from the **DSP** to an **output connector**. Four **output channels** are available on each **unit**: **from OUT 1 to OUT 4**. Each **output channel** is driven by the **output channel parameters** displayed in the corresponding **output channel bar**.

**Output channel bar** Horizontal graphic bar located in the **control window** for **output channel parameters** visualization and settings.

**Output channel file** Computer file containing a set of **output channel parameters**. An **output channel file** features the **.channel** extension.

**Output channel parameters** **Mute, gain, delay, polarity, matrix, EQ** and **L-DRIVE** parameters which apply for a selected **output channel**. Some parameters are locked by L-ACOUSTICS®. The other ones can be set in the corresponding **output channel bar**.

**Output connector** Female SpeakON® or CA-COM® socket located on a **unit's** rear panel and allowing connection with a **loudspeaker system**.

**Physical system** **System** composed of a set of **physical units** connected to the L-NET Network (including the **IP Address**, selected **preset**, as well as **unit and group parameters** each **unit** memory contains).

**Physical unit** Real **unit** (as opposed to the **virtual unit**): L-ACOUSTICS® **LA4** or **LA8** Amplified controller.

**Preset** Complete set of parameters to drive **two input and four output channels**. Any **loudspeaker system** connected to a **unit** must be driven by a specific **preset** stored in this **unit**.

**Preset family** Set of **presets** driving **loudspeaker systems** of same type. The **preset family** name is displayed in the **Units Over Network** window.

**Preset file** Computer file containing a **preset**. A **preset file** features the **.preset** extension.

**Preset library** Set of **presets**.

**Preset library file** Computer file containing a **preset library**. Two **preset library files** exist and are respectively included in the **LA4 PRESET LIBRARY Pack** and **LA8 PRESET LIBRARY Pack** [2.3].

**Standalone mode** **Physical unit** operating state in which the **unit** is not synchronized with the L-NET Network.

**Standby mode** **Physical unit** state in which the **unit** does not operate (as opposed to the **operating mode**).

**Star topology** Network cabling scheme connected in parallel and including a **switch**.

**System** Set of **units** arranged into **groups**, each unit featuring its **IP Address**, **unit type**, **preset**, **unit parameters**, and **group parameters**.

**System file** Computer file containing a **system**. A **system file** features the **.system** extension.

**Switch** Universal Ethernet device used within a **star or hybrid topology** to connect the **units** in parallel in the L-NET Network.

**Unit** **System** basic component, identified by its **IP Address** and featuring **unit type**, **current preset**, and **unit parameters**. A **unit** can be either a **virtual unit** or a **physical unit**. A **physical unit's** flash memory can also contain a **group** name and some **group parameters**.

**Unit bar** **Input and output channel bars**.

**Unit type** L-ACOUSTICS® amplified controller model: **LA4** or **LA8**.

**Unit parameters** **Input and output channel parameters**.

**Virtual system** **System** displayed in the LA NETWORK MANAGER user interface while the **computer** is not synchronized with the L-NET Network.

**Virtual Unit** **Unit** displayed in the LA NETWORK MANAGER user interface when the **computer** is not synchronized with the L-NET Network.

**WST®** Wavefront Sculpture Technology®: set of 5 technical criteria to apply to a horizontal or vertical loudspeaker line array in order for it to produce homogeneous sound field with a -3 dB SPL level decay rate when doubling the listening distance. The resulting **loudspeaker system** is called a **line source array**.



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