

F O R U M   N O K I A

# Nokia Audio Suite 2.0, Lights Editor (Stand Alone) User's Guide

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**NOKIA**

## Contents

<b>1</b>	<b>Introduction.....</b>	<b>4</b>
<b>2</b>	<b>Features and Limitations of the Lights Editor.....</b>	<b>4</b>
2.1	Rules Applicable to Standard MIDI Files ( <i>SMFs</i> ).....	4
2.2	What you can do with Lights Editor.....	4
2.3	What you cannot do with the Lights Editor .....	5
<b>3</b>	<b>Using the Lights Editor .....</b>	<b>5</b>
3.1	Menu File .....	5
3.2	Main Window.....	6
3.3	Editing an existing Lights Configuration .....	9
3.4	Light Config Options Dialog .....	9
3.5	Handling Existing LCs .....	12
<b>4</b>	<b>Example of the Use of the Lights Editor.....</b>	<b>15</b>

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## 1 Introduction

The Lights Editor is a tool for inserting, removing and editing Lights Configuration (LC) messages in an existing standard Musical Instrument Digital Interface (MIDI) file. With this tool, you can also mute and unmute channels.

The Lights Editor is a standalone application that is delivered with the Nokia Audio Suite.

The Nokia Lights Feature allows users to configure the behavior of device lights associated with MIDI ring tones to support the MIDI lights feature. MIDI files that include Lights Configurations can affect gel grips, display lights and keypad lights on target devices. The mapping of notes to lights is defined by *Lights Configurations* (LCs) that can be added to standard MIDI files. LCs are stored as MIDI Sysex Events.

## 2 Features and Limitations of the Lights Editor

### 2.1 Rules Applicable to Standard MIDI Files (SMFs)

The following rules apply to SMFs in connection with the Lights Editor:

- *SMF formats* — The Lights Editor supports SMFs with Formats 0 and 1.
- *Maximum number* — The maximum number of LCs in an SMF is limited to 12 with the Nokia 3220.
- *Positioning of LCs* — When saving an SMF, the LCs will be positioned on the tracks as follows:
  - Newly added or changed LCs are positioned on the first track of an SMF and before the first Note On Event on all tracks.
  - The positions of LCs that existed on Open and that were not edited in the Lights Editor remain unchanged.
- *Meta Event Timestamps* — When saving an SMF, all Meta Events (even those that had timestamps different from zero on Open) get timestamp zero.
- *Mute Functionality* — A channel is regarded as muted if and only if there is a ControlChangeMainVolume=0 before or at the first NoteOn event for the channel and there are no ControlChangeMainVolume>0 messages for the channel. Applying the mute functionality (see Section 3.2.2, “Mute?”) will not take effect on the loaded SMF before you save it. On Save, muting and unmuting will be handled via inserts of *Main Volume Control Change MIDI Events* into the track with most Note On Events for the channel and/or removals of *Main Volume Control Change MIDI Events*. Note that mute functionalities might differ in MIDI Sequencer Programs as sequencers use a variety of mappings of tracks to channels.

**Caution:** As the properties *Positioning of LCs*, *Meta Event Timestamps* and *Mute Functionality* mentioned above apply to the Lights Editor, it is recommended *not* to overwrite your original SMFs. Always save edited versions as new files.

### 2.2 What you can do with Lights Editor

- Add new LCs to an SMF the:  
On Save, new LCs are positioned in the SMF on the first track before the first Note On Event on all tracks.
- Edit existing LCs in the SMF:  
On Save, edited LCs are positioned in the SMF on the first track before the first Note On Event on all tracks.

- Delete existing LCs from the SMF:  
You cannot restore a deleted LC.
- Set the mute status of a channel:  
You can mute and unmute channels. On Save, the mute statuses are reflected in the file through the insertions and removals of *Control Change Main Volume MIDI Events*.

### 2.3 What you cannot do with the Lights Editor

- You cannot create new SMFs:  
Lights Editor is used for adding, editing or deleting LCs in existing SMFs.
- You cannot create new tracks:  
If you intend to create a separate track for MIDI Lights, you should *first use a MIDI Note Editor*. After that, you can add LCs (and a mute command in case the light events should be inaudible) using the Lights Editor.
- You cannot edit notes or instruments:  
Notes and instruments are shown on the specified channels only for information. You cannot edit notes or instruments with the Lights Editor. For this purpose, you can use a MIDI Note Editor.
- You cannot add LCs to unused channels:  
MIDI channels without any Note On Event are regarded as unused channels by the Lights Editor. You cannot add LCs to these channels.
- You cannot edit vibration assignments:  
Vibra is shown on specified channels only for information. You cannot edit this feature with the Lights Editor. For this purpose, you can use a MIDI Note Editor.

## 3 Using the Lights Editor

This chapter describes how to use the Lights Editor. For a short summary of this chapter, refer to the example provided in Section 4, “Example of the Use of the Lights Editor”.

### 3.1 Menu File

After starting the program you will see the **Main Window**.

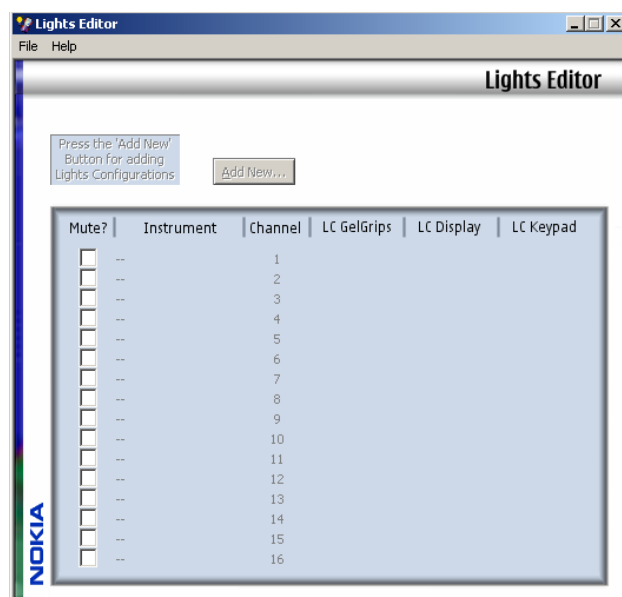


Figure 1. Main Window

The **File** menu provides the standard **Open...**, **Save** and **Save As....** options.

### 3.1.1 Open...

Choose **Open...** from the **File** menu to load the file to the Main Window. The standard File Selection Dialog will opens.

### 3.1.2 Save

You can save the SMF you edited, that is, *overwrite* the opened file, by choosing **Save** from the **File** menu. However, using this function is *not recommended*. Use **Save As...** instead to preserve the original file.

### 3.1.3 Save As...

Choose **Save As...** from the **File** menu to save the edited SMF in a *new* file. It is strongly recommended that you use this save option, as you might have altered not only the LC parts of the SMF. For more details, see Section 2.1 “Rules Applicable to Standard MIDI Files (SMFs)”.

## 3.2 Main Window

After opening a file, the SMF is shown as a listing of the 16 MIDI Channels and their attributes.

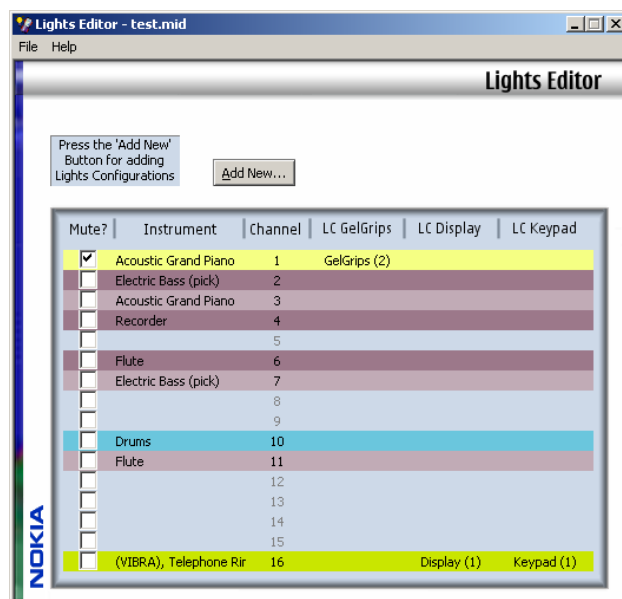


Figure 2: Main Window with loaded SMF

### 3.2.1 Channel List Rows

The MIDI Channels used are colored according to their content:

- Used channels without LCs are highlighted in violet with two different shades for odd and even rows.
- Used channels with LCs are highlighted in yellow with two different shades for odd and even rows.
- The drum channel (always MIDI Channel 10) is highlighted in blue.

Unused MIDI Channels are grayed out in the Lights Editor and they cannot be selected. The Lights Editor considers channels without a Note On Event as unused. However, there may still be other events on this channel.

### 3.2.2 Channel List Columns

The following information and functionalities are provided for all used channels (from left to right):

#### 1. Mute?

The Mute column indicates the mute status of the channel.

This function is primarily used to check and, if necessary, to mute channels created for lights information. Notes that are exclusively composed to control lights do not follow the rules and therefore sound very odd. To prevent these notes from disturbing the melody, you should mute them. Take care not to mute any channels that should be audible!

#### 2. Instrument

The Instrument column lists all instruments used in the channel. *VIBRA* in brackets means that the channel contains vibrator messages. Channel 10 is the MIDI Drum Channel.

#### 3. Channel

The number of the MIDI Channel.

#### 4. LC GelGrips

All LCs for Gel Grips are listed in a combo box. They can be selected for editing. The number of Gel Grip LCs assigned to this channel is shown in brackets.

#### 5. LC Display

All LCs for Display are listed in a combo box. They can be selected for editing. The number of Display LCs assigned to this channel is shown in brackets.

#### 6. LC Keypad

All LCs for Keypad are listed in a combo box. They can be selected for editing. The number of Keypad LCs assigned to this channel is shown in brackets.

### 3.2.3 Adding a New Lights Configuration

There are two ways of adding a new LC to a loaded SMF:

1. Press the **Add New** button or
2. Right click on a **Channel List** field.

**Note:** Adding a new LC is only possible as long as the maximum number of allowed LCs in an SMF is not reached. When the threshold is reached, the **Add New** button is deactivated and its description changes.

### 3.2.4 Add New Button

You can open the *LC Source and Destination Dialog* in the Main Window by pressing the **Add New** button.

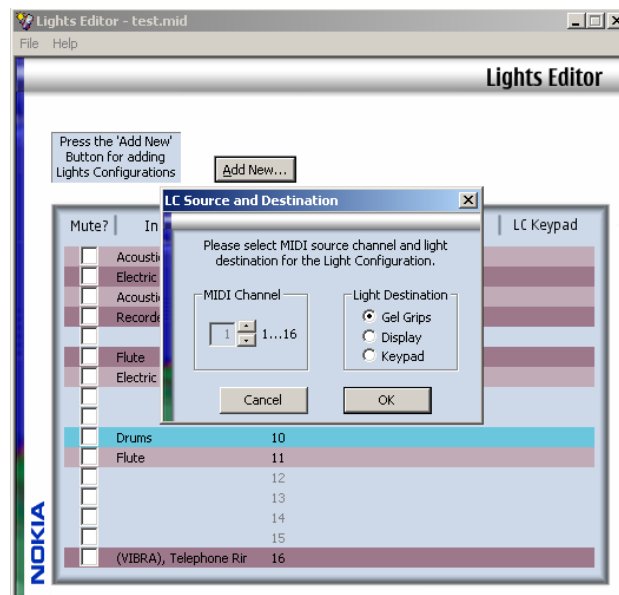


Figure 3: LC Source and Destination Dialog

Under *MIDI Channel*, you can select the channel you want the new LC to be assigned to. Under *Light Destination*, you can choose the light(s) you want to be affected by the LC.

The channel you selected in Main Window will be preselected in the LC Source and Destination dialog.

Once you have chosen the channel and destination, click **OK** to open the Light Config Options dialog.



### 3.2.5 Right Click on the Channel List Fields

You can also open the Light Config Options Dialog from the Main Window by clicking the **right** mouse button on an ungrayed row of the Channel List. Depending on the column, the **New GelGrips LC**, **New Display LC** or **New Keypad LC** context menu pops up. Click the **left** mouse button on the menu to open the Light Config Options Dialog with the desired channel and destination.

### 3.3 Editing an existing Lights Configuration

Click an LC item located in one of the last three columns of the Channel List in the Main Window to open a **Combo Box**. It contains entries named **Edit 1**, **Edit 2**, ... depending on the number of existing LCs for the chosen channel/destination combination. You can open the Light Config Options Dialog by clicking the left mouse button on one of the entries.

The Light Config Options Dialog shows the properties of the selected LC. For more information on how the Lights Editor deals with LCs that existed on Load, see Section 3.5 “Handling Existing LCs.”

### 3.4 Light Config Options Dialog

The Light Config Options Dialog allows you to design LCs appropriate to your SMFs. The dialog box is divided in three areas:

1. Assignment groups – Source Type, Which Note (Drum) for selecting *which notes* affect lights.
2. Mapping groups – Intensity, Destination, Color for specifying *how* the selected notes affect lights.
3. Phone picture – For a *preview* of which notes affect which lights in which color.

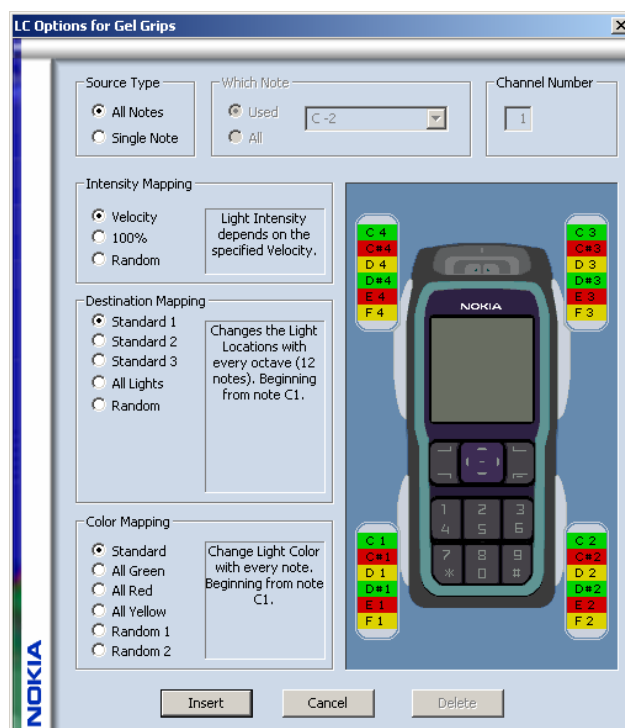


Figure 4: Light Config Options Window for a GelGrip LC

Confirm your changes to the LC by closing the dialog with the **Insert** button. If you opened an existing LC you can delete the LC from your SMF with the **Delete** button.

### 3.4.1 Assignment Groups

Use the radio buttons to choose between an *All Notes* and a *Single Note* assignment.

#### 1. All Notes Assignment.

All musical notes – from C-2 to G8 (0 to 127) – affect lights.

**Tip:** This mode is recommended for the quick configuration of the channels used by lead instruments.

#### 2. Single Note Assignment.

Only the user-specified musical note will affect light(s).

If you selected Single Note Assignment, the *Which Note* field is activated. It allows you to select a single note to which all the other mappings in the dialog will apply. You can set the range of the combo box to **All** notes or to the notes **Used** in the LCs channel with the radio buttons.

In case you are editing a drum channel, the group will be named *Which Drum* and the combo box shows the names of all drums available.

### 3.4.2 Mapping Groups

Intensity Mapping is provided for all types of LCs. In addition, Destination Mapping and Color Mapping options are available for Gel Grips LCs.

#### 1. Intensity Mapping

Intensity Mapping controls the intensity of affected lights:

- **Velocity** - Light intensity depends on the velocity of the affecting note.
- **100%** - Always full light intensity.
- **Random** - Random light intensity.

#### 2. Destination Mapping

Destination Mapping controls the destinations of the affected lights. The available options depend on the chosen Assignment Mode (see Section 3.4.1, “Assignment Groups”).

Options available in both modes:

- **All Lights** - A note affects all lights.

Options available only in the **All Notes** mode:

- **Standard 1**

The Light Locations change with every octave (12 notes). The first location is in the Lower Left corner. This assignment begins from note C1 and goes counter clockwise with each note ascending. This means that all notes from C-2 to C1 (excluding C1) are ignored by the algorithm and can be used for other assignments.

- **Standard 2**

This mapping is similar to Standard 1, but the Light Locations alternate between the Lower and Upper Rows with every note. Starting from note C1 and the Lower Row.

- **Standard 3**

This mapping is similar to Standard 2, but the Light Locations alternate between the Left and Right Columns with every note. Starting from note C1 and the Left Column.

- **Random**

The locations are randomly chosen by the hardware. No preview available.

Options available only in the **Single Note** mode:

- **Lower Row**

The selected note or drum will affect the Lower Row Lights.

- **Upper Row**

The selected note or drum will affect the Upper Row Lights.

- **Left Column**

The selected note or drum will affect the Left Column Lights.

- **Right Column**

The selected note or drum will affect the Right Column Lights.

- **Lower Left**

The selected note or drum will affect the Lower Left Light.

- **Lower Right**

The selected note or drum will affect the Lower Right Light.

- **Upper Right**

The selected note or drum will affect the Upper Right Light.

- **Upper Left**

The selected note or drum will affect the Upper Left Light.

### 3. Color Mapping

Color Mapping controls the color of affected lights. The options available depend on the chosen Assignment Mode (see Section 3.4.1, "Assignment Groups").

Options available in both modes:

- **Random 1**

Light colors are randomly chosen by the hardware with matching selected patterns if any are selected e.g. rows or columns. No preview available.

- **All Green**

All lights are shown in green.

- **All Red**

All lights are shown in red.

- **All Yellow**

All lights are shown in yellow.

Options available only in the **All Notes** mode:

- **Standard**

Light colors change with every note. Starting from C1, the colors change repeatedly from green to red to yellow with every note. This means all notes from C-2 to C1 (excluding C1) are ignored by the algorithm and can be used for another assignments.

Options available only in the **Single Note** mode:

- **Random 2**

Light colors are randomly chosen by the hardware without matching patterns. Every light has an independent randomly chosen color. No preview available.

### 3.4.3 Phone Picture

The phone picture displays the four Gel Grips, the Display and the Keypad Light.

The phone picture shows the note/lights mapping set by the LC. It shows previews that show you which note will affect a specific destination or (if available) a specific color when the SMF is played on a phone. It does not indicate intensities or show the results of random options chosen!

The light destination may not be large enough for showing all the note or drum names assigned to it. In this case, click the destination and scroll with the mouse wheel or the up and down arrows. Full note or drum names are provided in tool tips.

## 3.5 Handling Existing LCs

### 3.5.1 Types of LCs

Each LC contains at least one property. Properties can be divided in *standard*, *extended* and *unsupported* properties. As long as you create and edit LCs with the Lights Editor only, your LCs will only contain standard properties and hence will be standard LCs. However, there are also other types of LCs.

The currently *channel used* of the SMF includes the MIDI Note On Event.

LCs can be divided in four different groups:

1. *Standard LCs* are LCs that
  - contain only standard properties and
  - are assigned to a used channel
2. *Extended LCs* are LCs that
  - contain standard properties and at least one extended property and
  - are assigned to a used channel

or

  - are of the type STOP
3. *Unused Channel LCs* are LCs that
  - contain only standard and extended properties and
  - are assigned to an unused channel
4. *Unsupported LCs* are LCs that
  - contain at least one unsupported property

or

  - are of the type RESET

The following table shows how different LC types are handled in the Lights Editor:

	Shown in the Channels List	Contributes to the Number of LCs	Editable	Deletable
Standard LC	Yes	Yes	Yes	Yes
Extended LC	Yes	Yes	Yes (*)	Yes
Unused Channel LC	Yes	Yes	No	Yes, on File   Open... (**)
Unsupported LC	No	No	No	Yes, on File   Open... (**)

Table 1: Handling of different LC types

(\*) You must confirm the *overwriting* of extended properties with standard properties.

(\*\*) You must confirm the deletion of *all* LCs of the same type.

### 3.5.2 Standard LCs

Standard LCs are fully supported by the Lights Editor and are processed as described in Section 3.3, “Editing an existing Lights Configuration.”

### 3.5.3 Extended LCs

Extended LCs are shown in the Channels List of the Main Window as usual. When you try to edit an Extended LC, you will be shown a Message Box (see Figure 5). It indicates, which configuration options used in the LC are not supported.

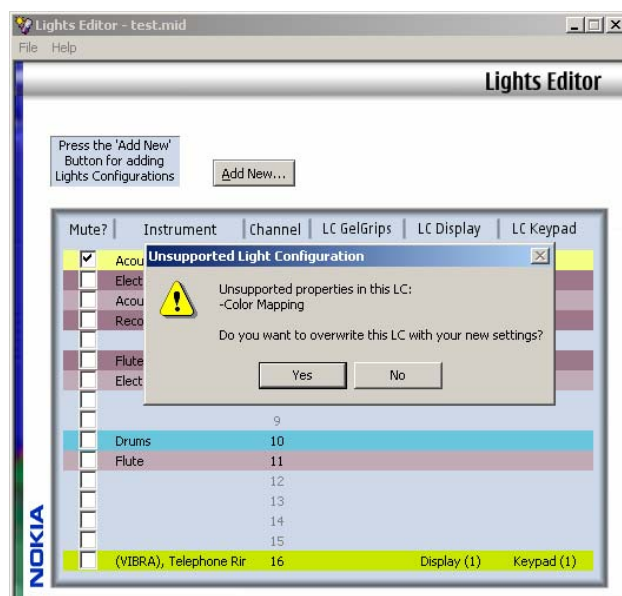


Figure 5: Handling of an Extended LC

When you confirm the overwriting of an existing LC by pressing the **Yes** button, the Light Config Options Dialog will open and show a default LC.

### 3.5.4 Unused Channel LCs

After loading an SMF that contains Unused Channel LCs, you are shown a Message Box (see Figure 6). It indicates the number of Unused Channel LCs found.

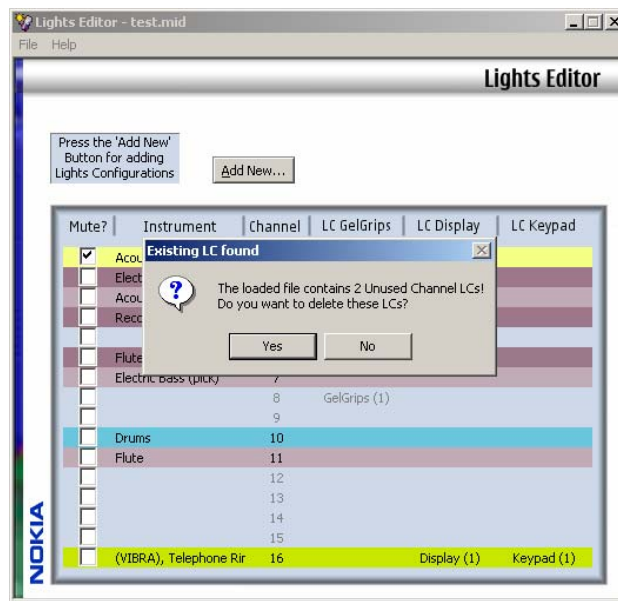


Figure 6: Handling of an Unused Channel LC

You can delete these LCs by pressing the **Yes** button. This is recommended in case you do not plan to add notes to the affected channels afterwards and the number of LCs in the file is close to the threshold of 12 allowed LCs.

If you press the **No** button, you can proceed with the Main Window. Unused Channel LCs are shown in the Channels List, but they cannot be edited or deleted, and they contribute to the LC count.

### 3.5.5 Unsupported LCs

After loading an SMF that contains Unsupported LCs, you will be shown a Message Box (see Figure 7). It indicates the number of Unsupported LCs found.

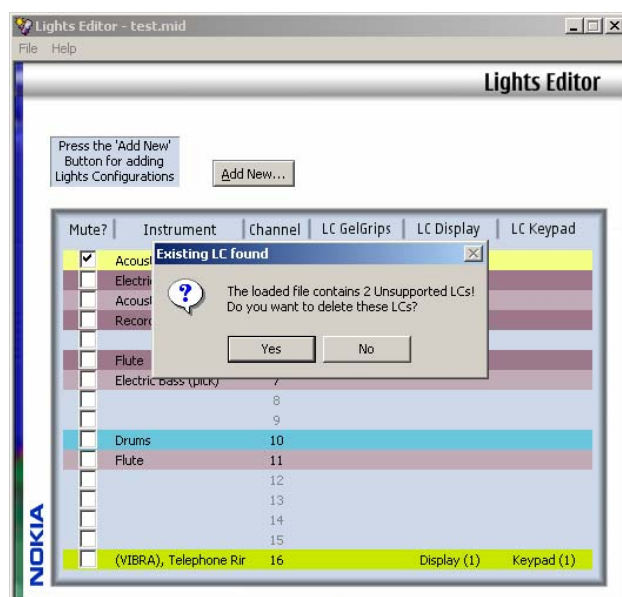


Figure 7: Handling of an Unsupported LC

You can delete these LCs by pressing the **Yes** button (recommended).

If you press the **No** button, you can proceed with the Main Window. Note that Unsupported LCs are not shown in the Channels List.

## 4 Example of the Use of the Lights Editor

You can, for example, use the Lights Editor to add some LCs to an existing SMF in order to interpret some instruments as lights.

For example, you can add LCs to an SMF *song.mid* that includes drums, such as snares, bass drums and hand clap. You want:

- The Acoustic Snare to activate the Upper Left Light in red
- The Acoustic Bass Drum to activate the Lower Row in yellow and
- The Hand Clap to activate the Display Light

You can create a file *song\_result.mid* that includes 3 LCs with the properties described above by applying the following steps:

1. Open *song.mid* by choosing **Menu > Open...**
2. Right click on the row of channel number 10 in the GelGrips LC column and select **New GelGrips LC**. The Config Options Dialog opens.
3. Under **Source Type**, select **Single Note**.
4. Under **Which Drum**, select **Acoustic Snare**.
5. Under **Destination Mapping**, select **Upper Left**.
6. Under **Color Mapping**, select **All Red**.
7. Press **Insert**. You return to Main Window, the new LC is shown in the drum channel.
8. Repeat steps 2 to 7, but this time select **Acoustic Bass Drum** (4), **Lower Row** (5) and **All Yellow** (6).
9. Right click on the row of channel number 10 in the Display LC column and select **New Display LC**. The Config Options Dialog opens.

10. Under Source Type, select Single Note.
11. Under Which Drum, select Hand Clap.
12. Press **Insert**. You return to Main Window, the new LC is shown in the drum channel.
13. Save the song in name song\_result.mid by choosing **Menu > Save As....**