Map File Converter

Version 4.1.1

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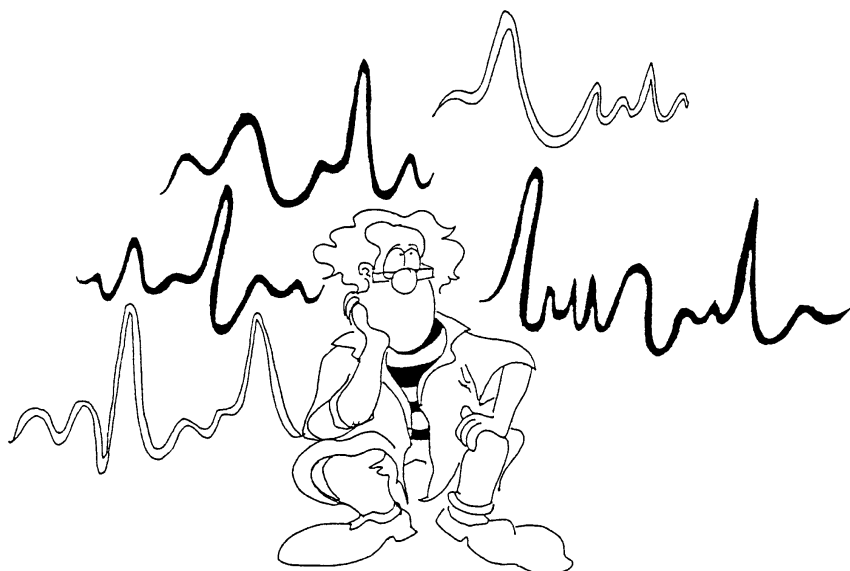
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1 ABOUT THIS MANUAL

1.1   List of Abbreviations:

ASD   - Alpha Spike Detector

DAP   - Data Acquisition Processor

EPS   - Electrode Positioning System

MCP   - Multi Channel Processor

MSD   - Multi-Spike Detector

PSTH   - Peri-Stimulus Histogram

1.2   Reference Documents:

AlphaMap User Manual

Hardware Manual, Microstar Laboratories
(http://www.mstarlabs.com/hardware/5200/5200spec.html)

2 <u>INTRODUCTION</u>

The File Converter Application is a file utility supplied with the AlphaLab and AlphaMap products. It provides the user with three main functions:

- Convert files from **map** format to **other** formats
- Merge **map** files together
- Post-Process files to prepare them for offline analysis

2.1 Starting the Map Converter Application

There are two ways to start the Map Converter application:

Under AlphaLab

1. From the **AlphaLab Server/Client** application.

   Click the **Converter** icon. or

2. Select **Start > All Programs > AlphaLab > Off Line Applications > Converter**

Under AlphaMap

1. Click on the Mapfile Icon on the Desktop, or

2. Select **Start > All Programs > AlphaMap > MAP Converter**

In all cases, the main "Map Converter" window appears (See Figure 1):
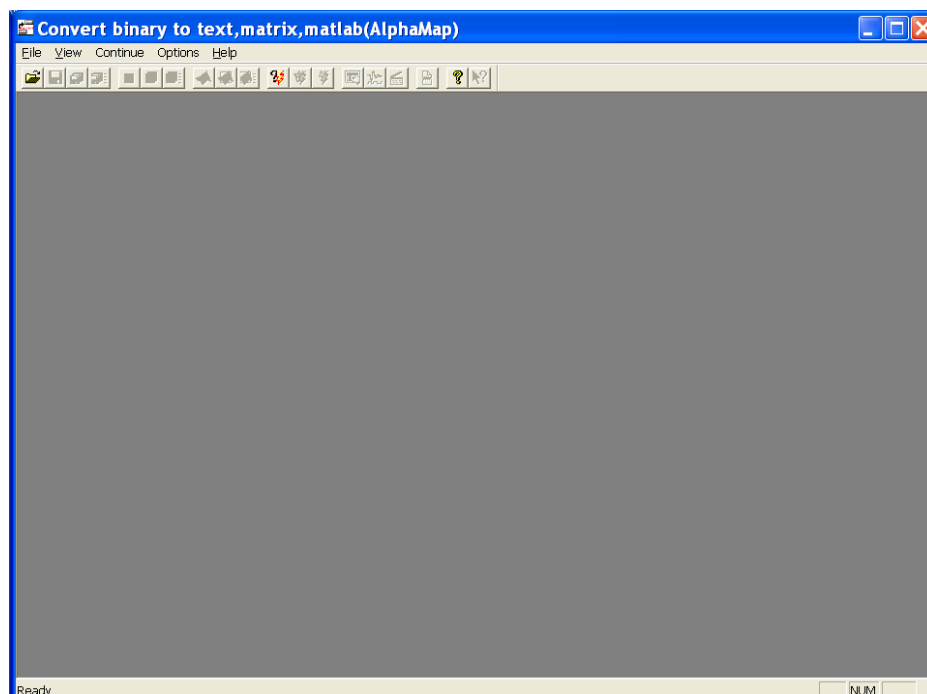
Figure 1: Main Map Converter window

3 FILE CONVERSION

Data Acquisition under AlphaLab or AlphaMap stores all its output data files in binary format using Alpha Omega proprietary map format, or other vendor formats. The map files may need to be converted to other formats for further processing. This is where the Map Converter comes in handy; hence it is a special conversion program that allows converting files from binary map format to text, matrix, Matlab, or other vendor formats.

Step-by-Step Conversion

Loading a Binary File

Three types of files may be loaded for conversion:

- Files with a **".map"** extension:
    - These are real AlphaMap binary data files.
- Files with a **".lsm"** extension:
    - These are text files that contain a list of map files. When a ".lsm" file is opened, all files listed within it are loaded for conversion.
- Matlab files with a **".mat"** extension.
    - These are Matlab Files that may be created by labs.

To load a binary file, select the **File->Open** menu option (see *Figure 2*) or use the Open button on the tool bar. The file name selection dialog box appears (see *Figure 3*).
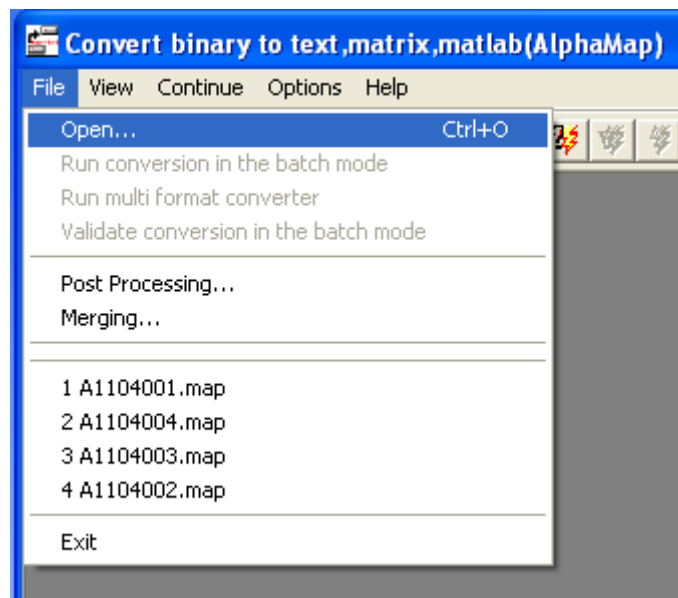
Figure 2: File Menu
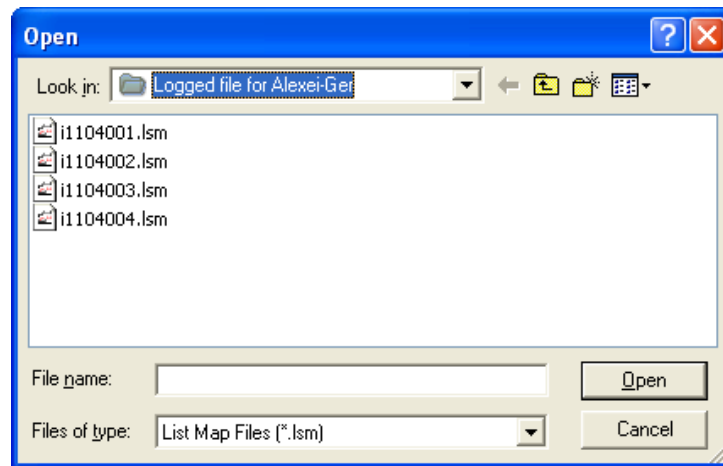
Figure 3: File names selection

Select the desired file and click the **OPEN** button. This operation loads the file from disk, opens a window for each ".map" file and starts scanning the data (see *Figure 4*). Each window has the name of the file specified at the top and shows other information available for that file.
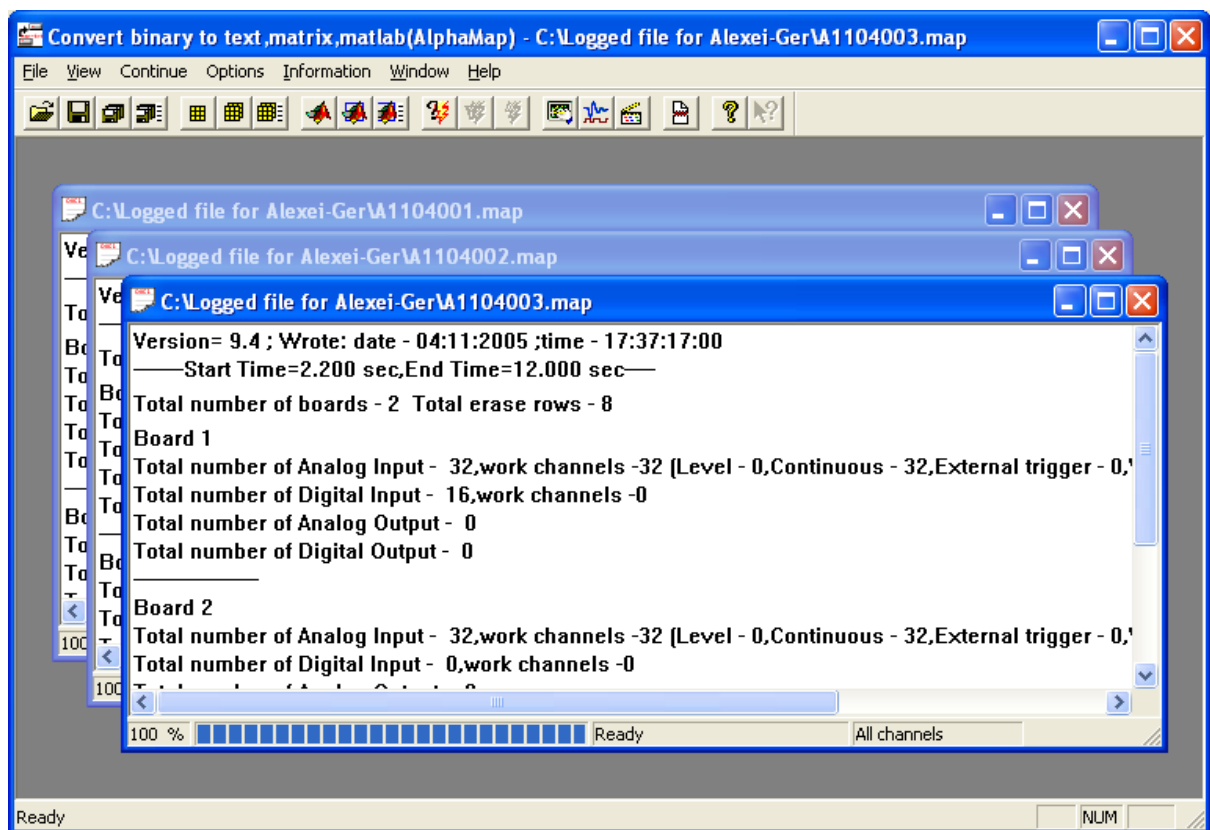
Figure 4: Binary file Specification Windows

3.1 The Scanning Process

The scanning process determines the minimum and/or maximum timestamps for each channel. These timestamps may be needed for the creation of the matrix or the Matlab file format. The scanning process also outputs information into the text file "**trace_mf.dat**"

about erased signals and corrupted parts of the source files. This file is stored in the same directory where the conversion program is located.

To interrupt the scanning process, click the File Converter's Close button - located at the upper right corner of the main window. The following message box appears:
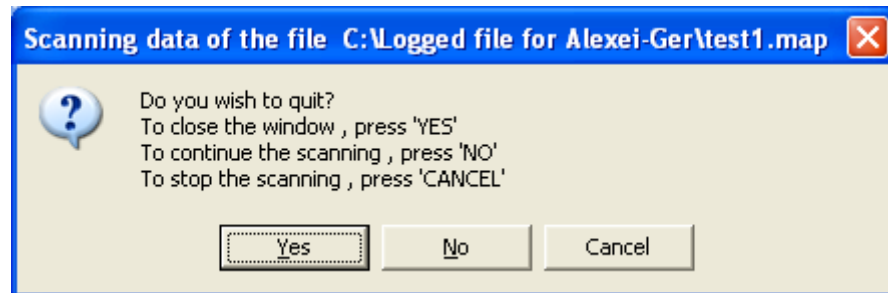
Figure 5: Interrupting the Scanning Process

Once the scanning has ended or been interrupted, it becomes possible to perform other functions or queries on the Binary File Specification Windows (see *Figure 6*).
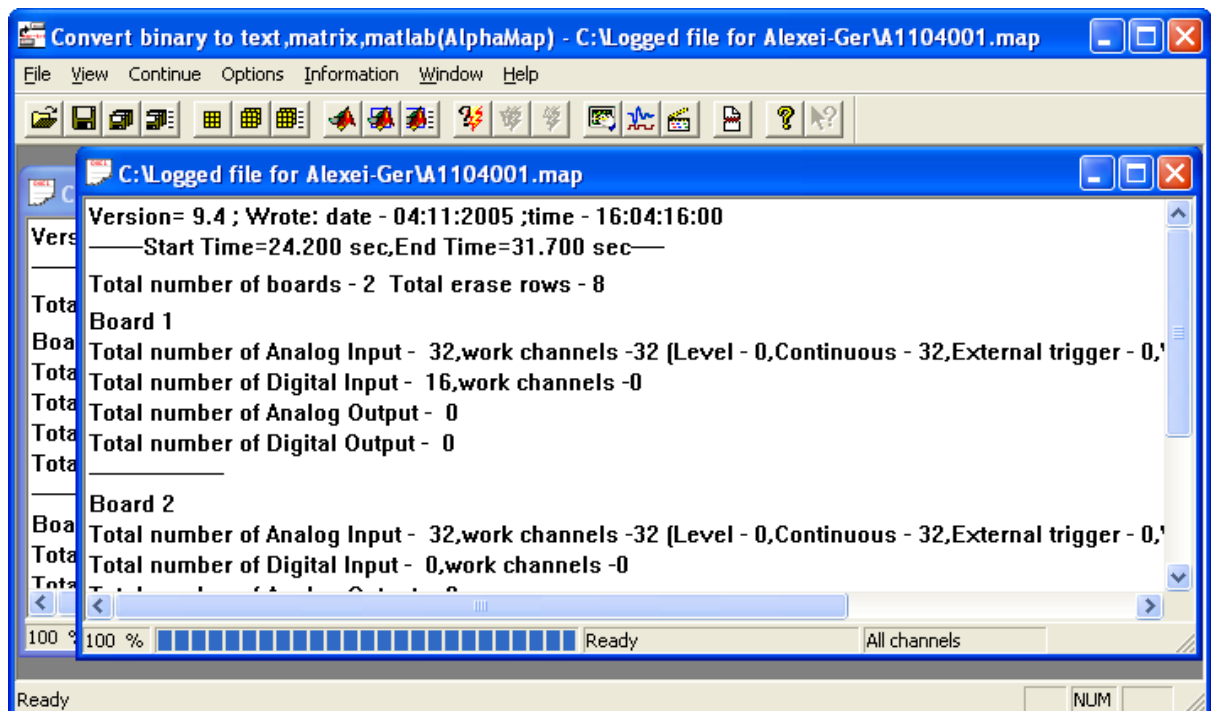
Figure 6: Binary File Specification Window in the 'Ready' State

3.2   Examine the File Scan Results

To look at the results of the scan, select the "**Scanning**" option from the **"Information"** menu. The dialog "**Result of scanning**" appears (see *Figure 7*) showing trace data applicable to the active Binary File Specification Windows.
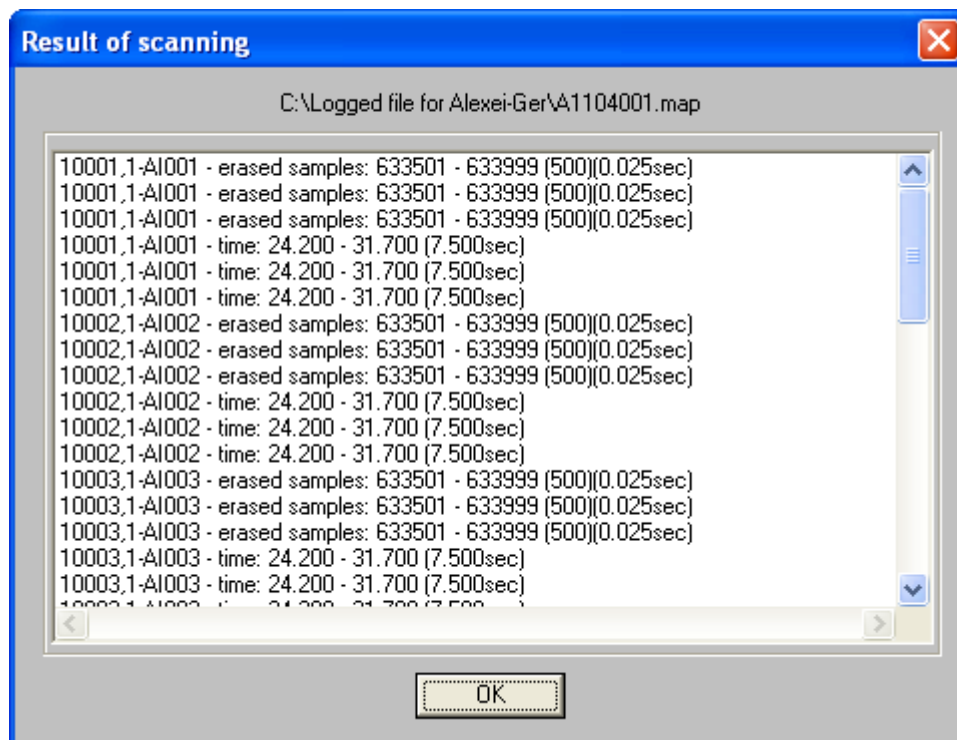
Figure 7: Scanning process information

To view additional information about channels, select the "**Analog Input**" option from the "**Information**" menu, and the "**Analog Input**" dialog box appears (see *Figure 8*). Select the desired Board, and the desired channel from the list box.
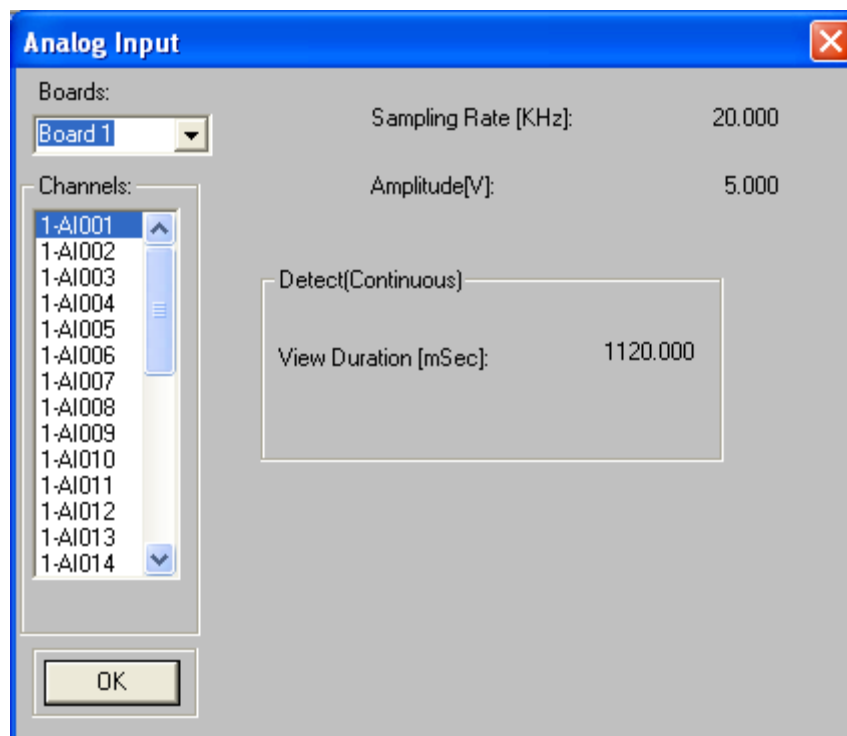
Figure 8: Analog Input Dialog Box

To select channels for conversion and **set the desired sample times,** select the item "**Input definition**" from the "**Options"** menu. The "**All Channels"** dialog box appears (see *Figure 9*).

Figure 9: 'All Channels' Dialog Box

This dialog box contains the properties for all channels and shows the minimum and maximum sample times in the source file. The program converts data of the defined time interval only for channels in which the checkboxes are turned on ☑. To convert all data to text or matrix format, enter the value "-1 " in both fields of the "**Type times for desired Samples:**" otherwise enter the minimum and maximum sample times desired.

To select all channels, click the **"Select All"** button. To select one or more channels, mark the appropriate checkbox and click the "**Select**" button. To deselect all channels, click the "**UnSelect All"** button. To deselect one or more channels, select the appropriate channel and click the "**UnSelect"** button. To select or deselect one channel double click the left mouse button on the appropriate checkbox.

3.3 Convert a Binary File to Matlab Format

Before starting conversion to Matlab file format, setting the Matlab file creation options may be required. For this purpose, select the item **"Convert to Matlab format Options"** from menu **"Options" –** then the dialog '**Matlab file creation options'** appears (see *Figure 10*)
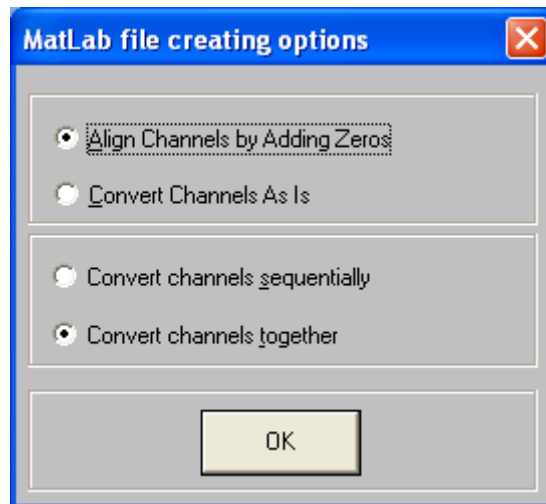
Figure 10: Matlab file creation options

If you check the **"Convert channels sequentially"** option, then data is converted to Matlab format one channel at a time. Every time data for one channel is converted and written to the output file, the source file is read from the beginning to convert and write data for the next channel. When the option "**Convert channels together"** is selected, which uses less memory, the status bar will show "all channels".

To convert to the Matlab format; change the sampling rate of a channel by selecting the appropriate row, clicking on the last column and typing the desired value. To refresh this specific value, click the button **"Current"**. To refresh all values in the column "**New Sampling rate (KHz)**" click the button **"All"**.

After loading the binary file(s), the '**File'** menu will contain three new groups of menu items. One group is for conversion to text files, the second is for matrix files, and the third group is for conversion to the Matlab file format (see *Figure 11*). Also, corresponding tool bar buttons will be available for use.
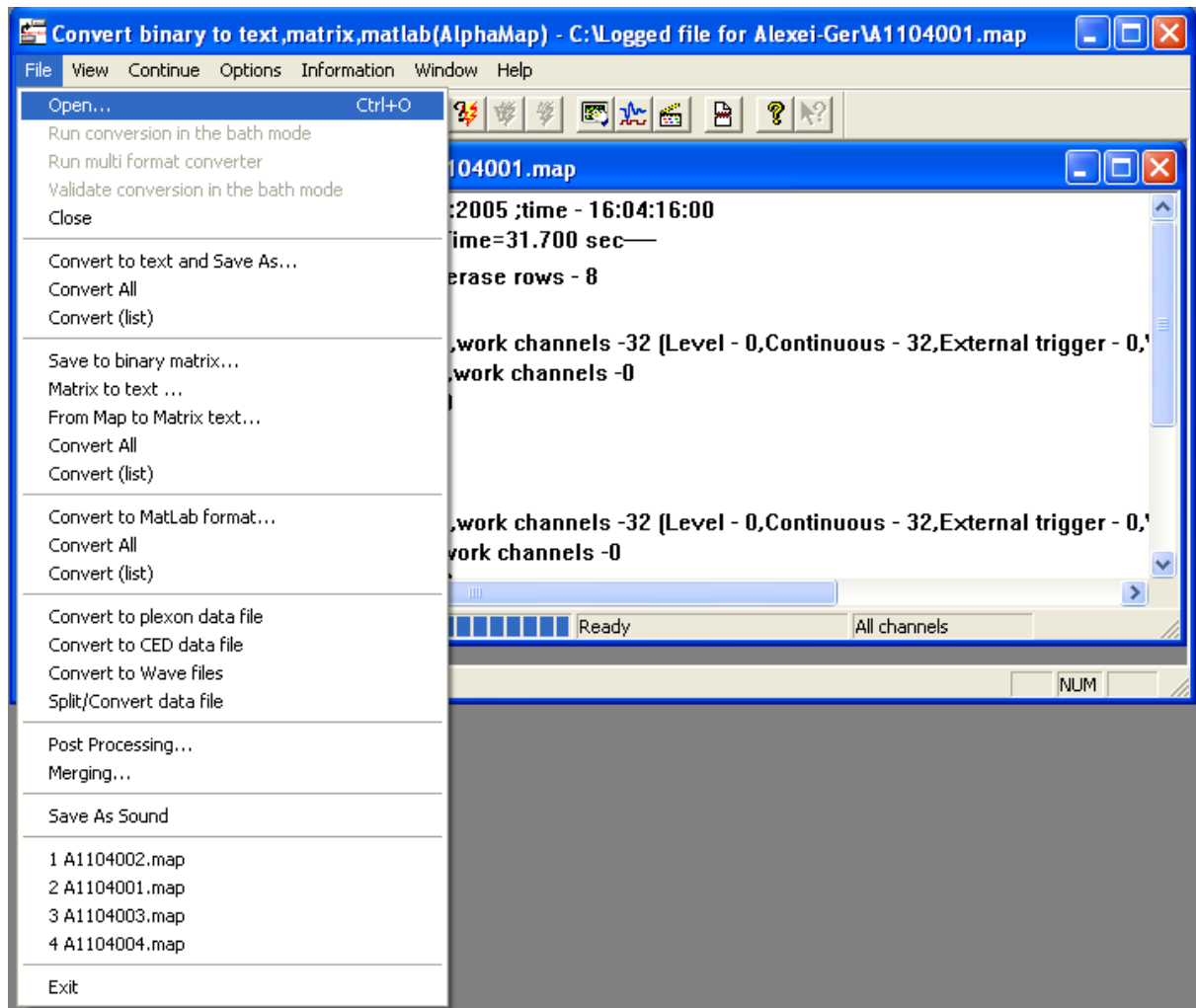
Figure 11: File menu options

3.4 Convert a Matlab File to Map Format

When selecting a Matlab file for conversion, the following window appears:
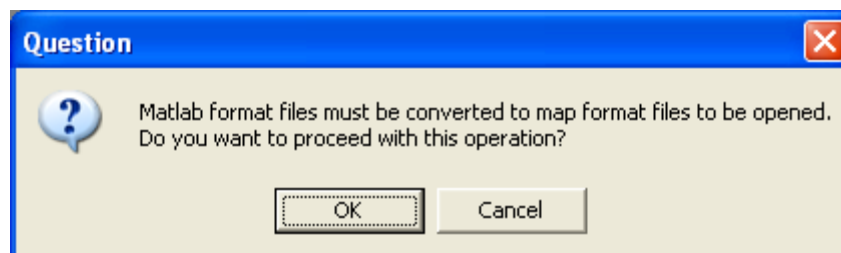
Figure 12: Matlab to Map Conversion

Click **OK** to proceed with conversion. The "**Save As"** dialog appears in which the user needs to set the output file name and path.

After setting the name and location of the saved file and pressing "Save", the following window appears:
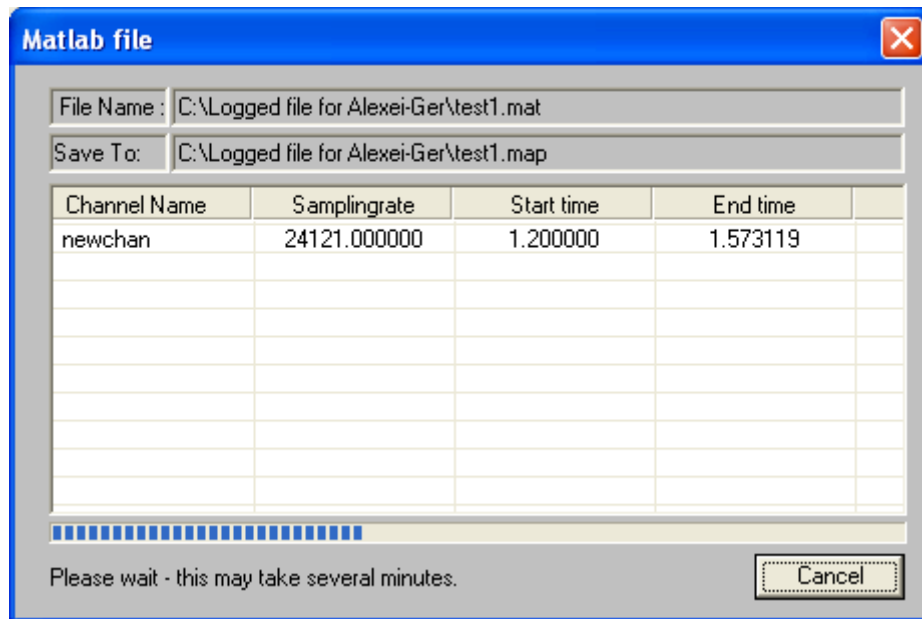
Figure 13: Matlab File Dialog

Depending on the size of the file, the conversion process may take several minutes.

After loading the file, channel information will be available on the window. When conversion is done, the new map file will be opened.

3.5 Convert a Binary File to Text Format

The '**Convert All'** menu item converts all loaded files. When selected, the "**Convert All"** option displays the **'Browse For Folder'** dialog box (see *Figure 14*). Here, the target directory for the converted output files may be set. The conversion process starts when the "**OK**" button is clicked. The resulting file names remain the same as the source files, but the extensions changes to "*.txt".

Figure 14: Browse For Folder Dialog Window

The "**Convert (list)"** menu item displays the **'Select files for conversion'** dialog box (see *Figure 15*). This dialog box displays the list of all loaded binary files. After making a selection and clicking the **'Ok'** button, the dialog box **'Choose directory'** appears (see *Figure 14*) and works in the same manner as above.
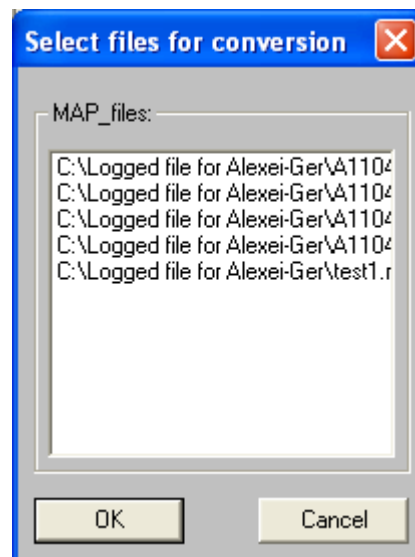
Figure 15: Select files for conversion

The "**Convert to text and Save As…"** is used to convert only the active binary file. When selected, it displays the standard **Save File** dialog box, which allows setting the name and directory of the output file (See *Figure 16*). When ready, click the "**Save**" button and the conversion will begin.
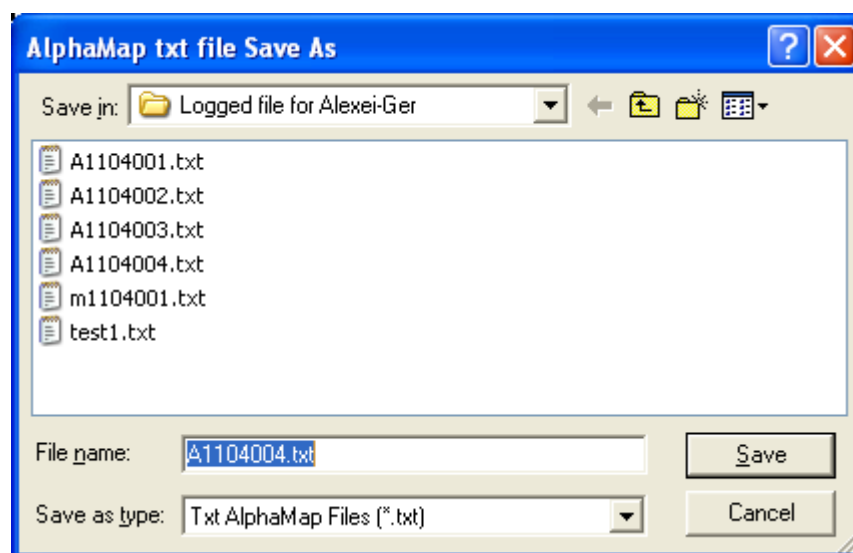
Figure 16: 'Save As' dialog box for text files

The progress of the conversion and the name of the output file are shown in the Status Bar of each Binary File Window. It is possible to save more than one file simultaneously.

Every time a conversion process is completed, successfully or unsuccessfully, the dialog box "**File creating report**" appears (see *Figure 17*). This box shows all the file activities for the current session. Exiting the current conversion session clears the list automatically.

To clear the list manually, click the appropriate button in the "**File creating report**" dialog box
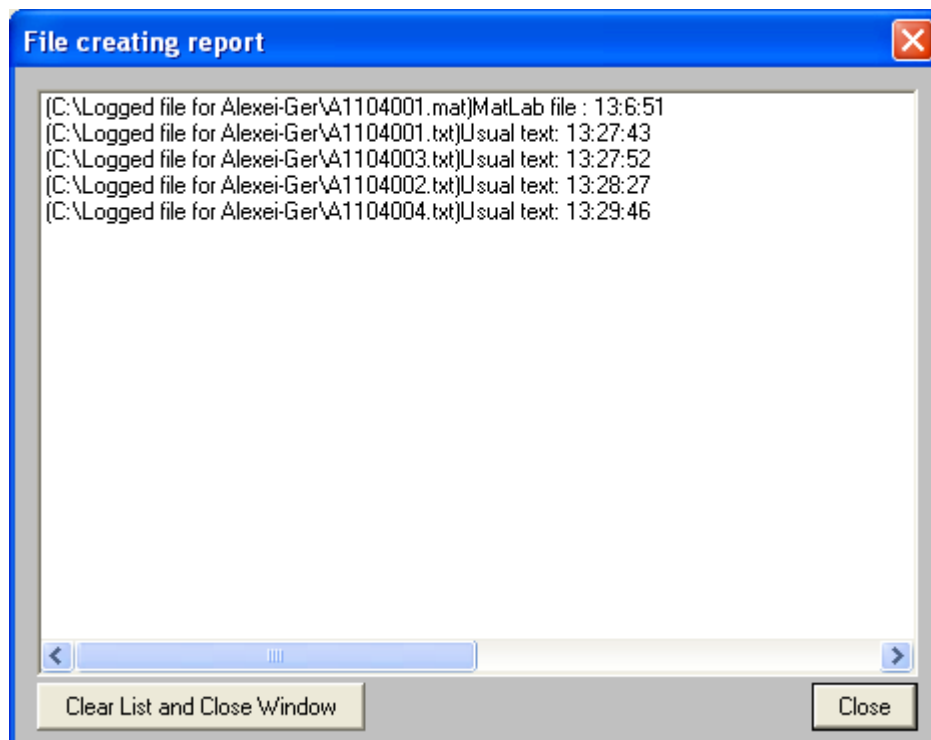
Figure 17: File creating report

For better performance, you must not activate this dialog while the conversion is in progress (the caption must be gray).

3.6   Convert a Binary File to Matrix Format

Before starting conversion to matrix file format, setting the matrix file creation options may be required. For this purpose, select the **"Create Options"** item from the **"Options"** menu**.** The '**Options'** dialog appears (see *Figure 18*).
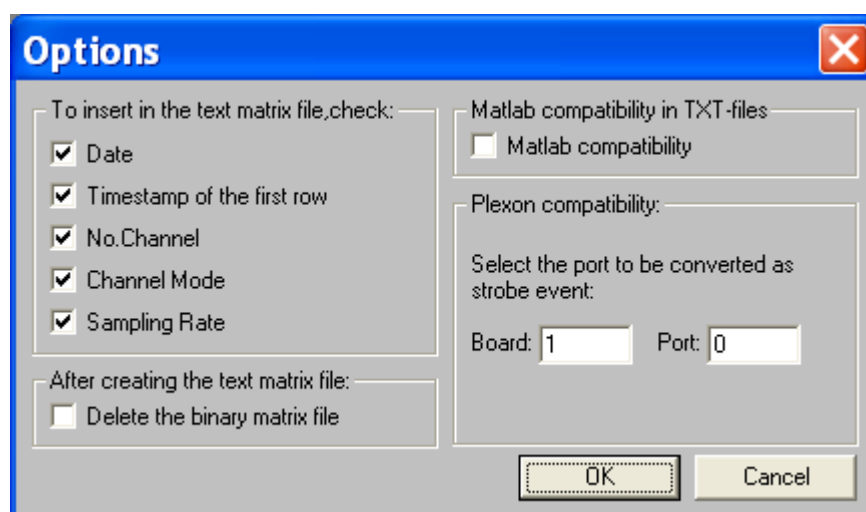
Figure 18: Text file options

Creating a text matrix file is a two-step process:

1. The binary map file is converted to a binary matrix file
2. The resulting binary matrix file is, in turn, converted to a text matrix file.

These two steps may be done separately by running the "**Save to binary matrix…**" item in the "**File**" menu, and then running the "**Matrix to text…**" item in the same menu. To convert a file directly from a binary map format to a text matrix format, select the "**From Map to Matrix text**" item, which runs both steps sequentially.

The "**Convert All**" and "**Convert (list)**" items for matrix files have the same function as the ones for the plain text file conversion. They both do the complete two-step conversion process for all/selected files. The binary matrix files are saved with the same name as the source file, but the extension changes to ".mtc". The text matrix files are also saved with the same name as the source file, but the first character in the name changes to the letter 'm' and the extension changes to ".txt".

The first several rows of the text matrix file belong to the header. The remaining rows contain data and are called 'data rows'. Each data row consists of cells, one for each channel. Each cell contains one sample. If the sample of a particular channel is absent, its cell will contain the string '-------'. The number of data rows inside the file equals to the timestamp of the fastest channel.

3.7 Convert a Map File to Plx Format

To convert AlphaMap files to Plexon data files, select Open from the Map Converter application. The "Open" dialog appears. Select the required map file and click 'Open'. After the file is opened, select **File->Convert to Plexon data files.** The 'Browse For Folder' dialog appears (*Figure 14*). Select a target directory for saving the new file.

Before starting conversion to Plx file format, setting the file creation options may be required to define which port will be handled as a strobed port in Plexon Offline sorter. For this purpose, select the **"Create Options"** item from the **"Options"** menu**.** The '**Options'** dialog appears (see *Figure 18*).

In the Plexon compatibility portion, select which port will be treated as the strobed port.

After the conversion is complete, a 'File creating report' window opens:
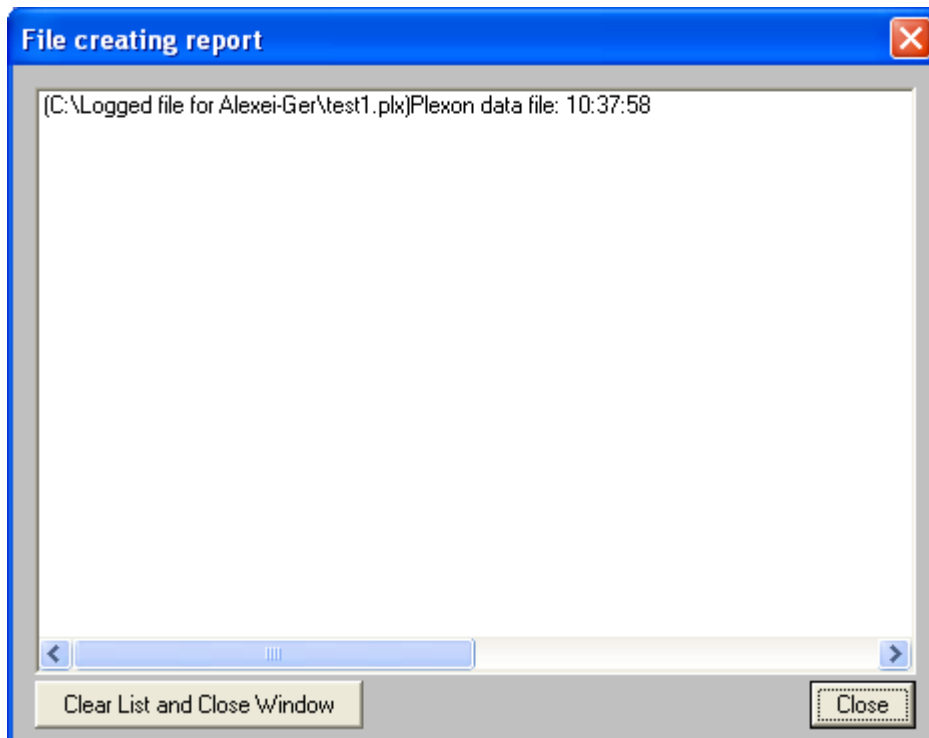
Figure 19: 'File creating report' dialog

A file with the same name, but with a ".plx" extension, is created in the specified directory.

Click the 'Close' button to close the window.

3.7.1 Interrupting the Conversion Process

The program shows the progress of the conversion (*Figure 20*).
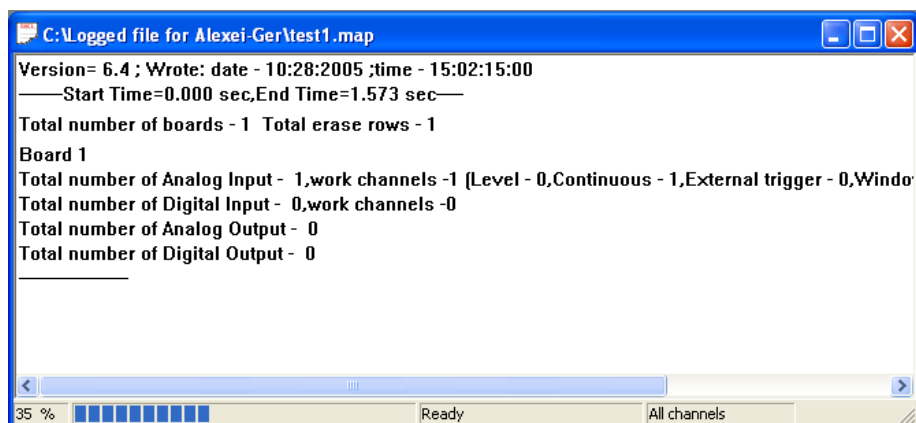
Figure 20: Conversion process display

To interrupt the conversion process, close the **Binary File Window** or the application itself.

3.8   Batch Mode for Conversion

Conversion may be run in batch mode. Set the batch conversion options and then run conversion in the batch mode.

3.8.1 Batch Mode Definition

For the batch mode definition, select the item **'Batch mode options'** from menu **'Options'** or click the button [icon] on the tool bar. The dialog "**Batch mode options**" appears (*Figure 21*).
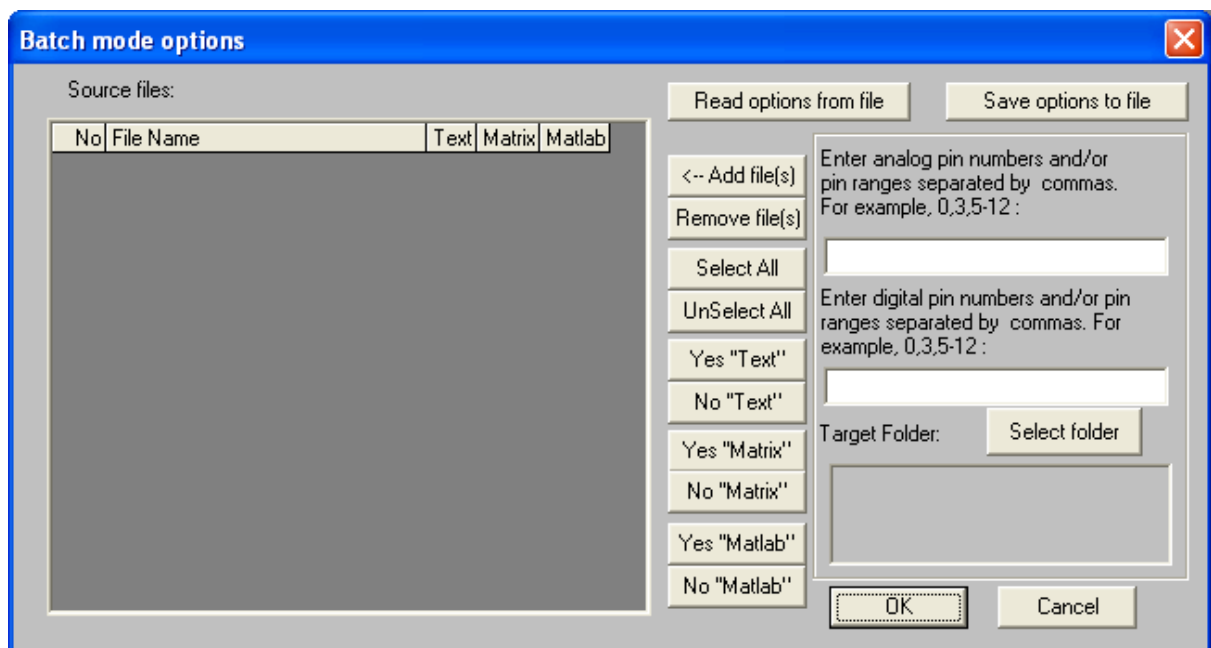
Figure 21: Batch mode options dialog

Click the **'Add file(s)'** button. The dialog box "**Select source files**" appears (*Figure 22*).
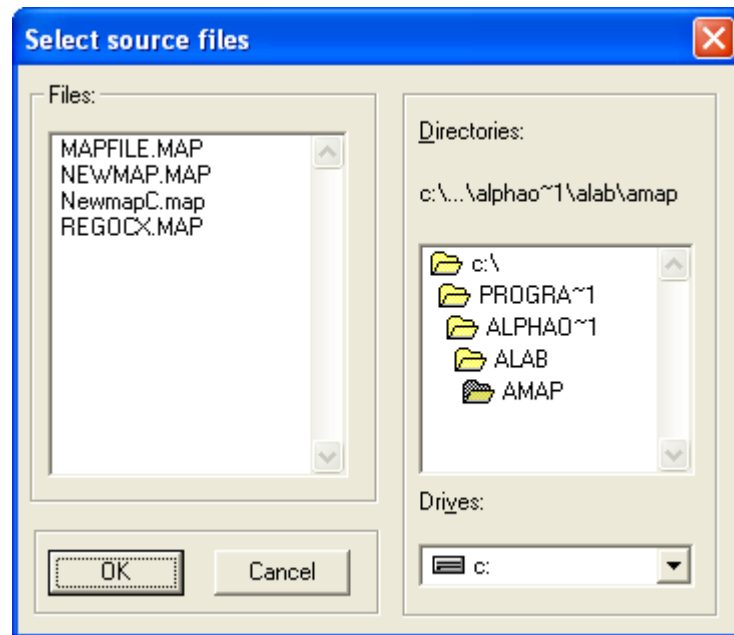
Figure 22: Select source files dialog

Select desired files and click **'OK'**. The selected file names are added to the list of the source files (*Figure 23*)
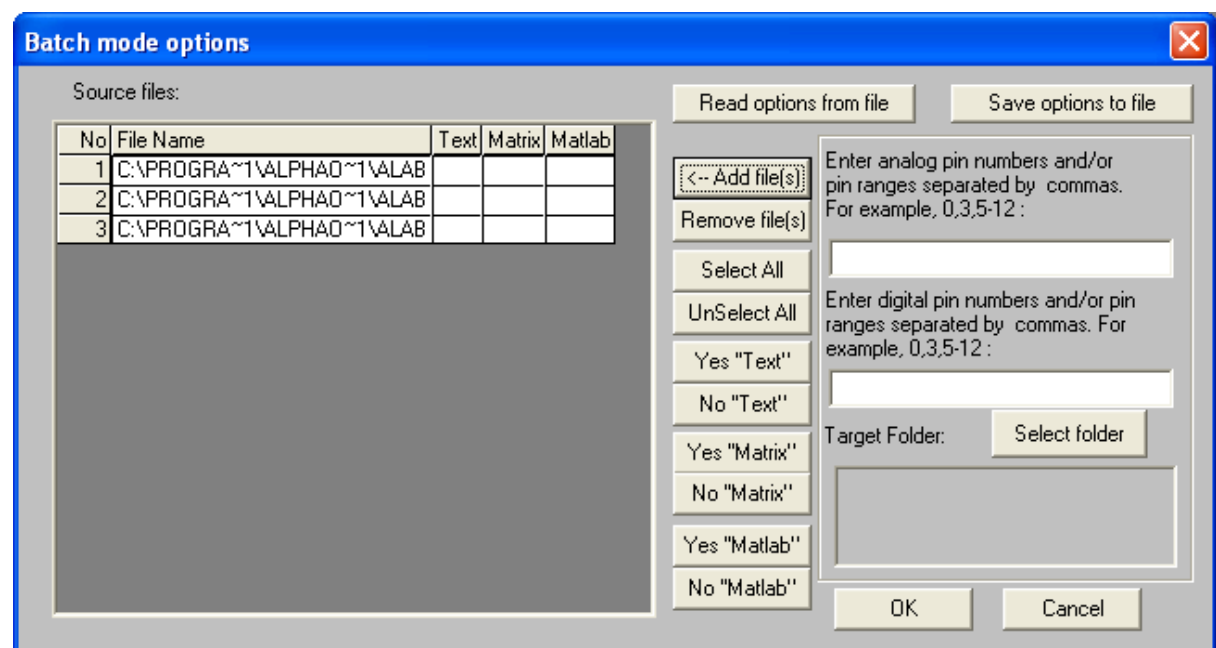
Figure 23: List of source files in the 'Batch mode options' Dialog

If the word 'Yes' is written in the cell of the 'Text', 'Matrix' or 'Matlab' columns, the source file will be converted to the 'Text', 'Matrix' and/or 'Matlab' format accordingly.

To change the contents of any cell, double click on this cell or select desired rows and click the appropriate button ('**Yes "Text"**', '**No "Text"**', '**Yes "Matrix"**', '**No "Matrix"**', '**Yes "Matlab"**', '**No "Matlab"**').

It is possible to select only a sub-set of analog and/or digital channels for conversion by filling in the analog and/or digital pins edit boxes on the right side of window that is

shown in *Figure 23*. If these boxes are left empty, data for all channels will be converted and written to the output file.

The button "**Select folder**" allows setting your output target directory (see *Figure 24*). Choose the desired folder and click the button 'OK'. The name of the selected folder appears inside the '**Target folder**:' box.
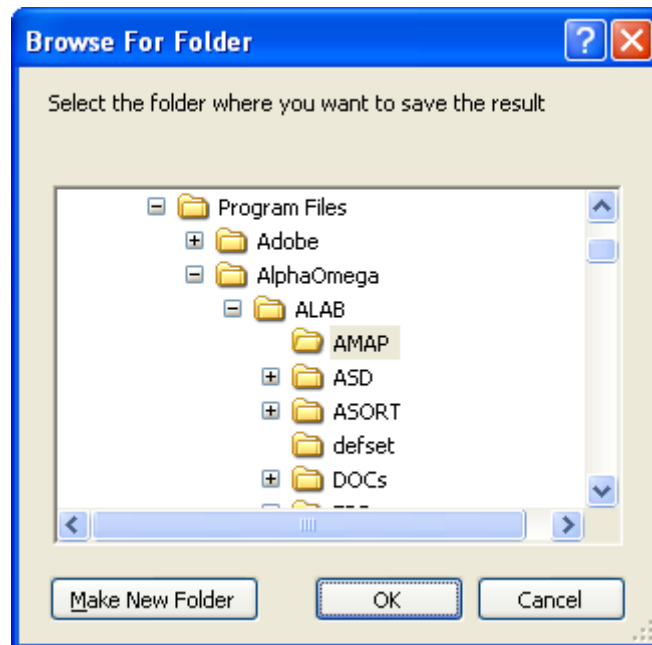
Figure 24: Browse For Folder dialog

To save the defined set of the options in a ".ini" file, click the button **'Save options to file'**. The window appears:
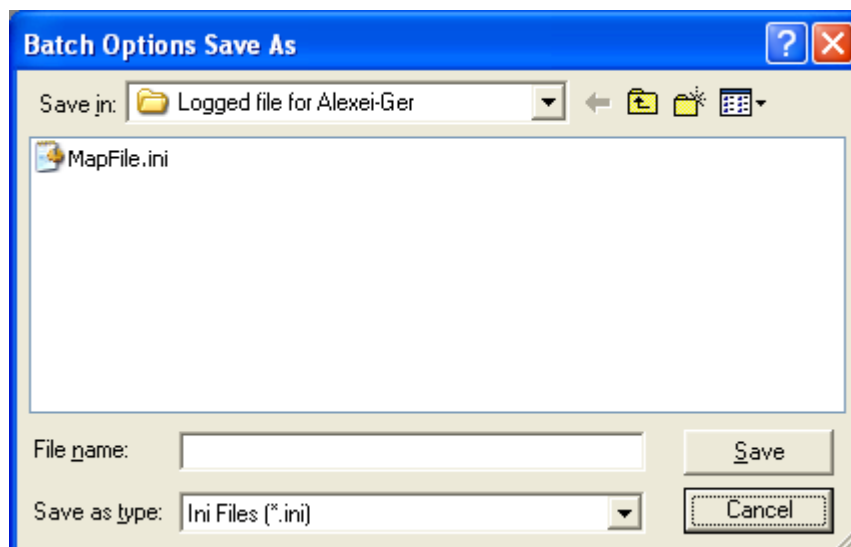
Figure 25: Batch Options Save As dialog

Select the desired folder, type a file name and click "Save".

To retrieve saved options, click the **'Read options from file'** button. Select a file and click on "**Open**". If the list of source files is not empty, the message box shown in *Figure 26* appears while the list is being updated.
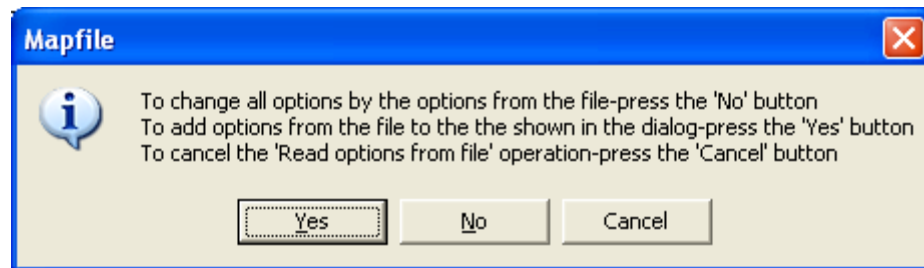
Figure 26: Updating the list of source files

Click the "**Yes**" button if you want to add the saved list to the current list, or "**No**" if you want to replace it.

3.8.2 Running Conversion in Batch Mode

To run conversion in batch mode, select the item '**Run conversion in the batch mode**' from the '**File**' menu or click the [icon] button on the tool bar. Before running the actual conversion, check the input data by selecting the item '**Validate conversion in the batch mode**' from the '**File**' menu or clicking the [icon] button on the tool bar.

When the conversion is completed, the "**File creation report**" appears showing various file activities. The system also writes the conversion results into the file 'convert.log' in the defined target directory.

3.9   Running Mapfile from a Command Line

It is possible to run the Mapfile converter from a command line. This will allow you to run a batch file to convert file.

To run the Mapfile from a Windows command line use the following format:

    mapfile |FileName|OutputFormat|OutputFolder|ChannelList|

To run the Mapfile from a DOS command line use the following format:

    mapfile |FileName|OutputFormat|OutputFolder|ChannelList|

FileName: Specify the name of the file or files you would like to convert. It is possible to specify a.lsm, a .map file, or a list of files.   Files names should be specified with a full path name. Below are some examples:

                c:\temp\files.lsm   ➔ for one lsm file
                c:\temp\file1.map   ➔ for one map file
                c:\temp\file1.map#c:\temp\file2.map#c:\temp\file3.map   ➔ for list of map file

OutputFormat: Specify the format of the output files as follows:

> Text ➔ Convert to text
> Matlab ➔ Convert to matlab
> TxtMatlab ➔ Convert to text that is compatible with matlab

OutputFolder: Specify the full path name of the output folder as follows:

> c:\outputfolder

ChannelList: If you would like to convert all channels, there is not need to use this parameter. If you would like to convert part of the channels, specify a list of channel ID's that you would like convert. Below are some examples:

> 10001,10002,10004,10005 ➔ Convert only channels specified in the list
> 10001-10004 ➔ Convert the specified range of channels
> 10001-10004, 10008-10012 ➔ Convert the specified ranges of channels

Note: If you are not going to specify a list of channels, do not include the last | or = in the command line.

Below is an example of a full command running from a DOS command line:

> mapfile.exe =c:\temp\file1.map=Text=c:\output=10001-10004,10010-10014=

3.10 Output Text File Structure

Each text file consists of different lines with a special structure in which the properties and data of the signal (sample) blocks (objects) are presented. The type of a line is defined in its key word. Spaces and tabulators separate the fields within a line. Following is the line structure.

Tip: You may find that all info and erase rows begin with the '%' sign and in the data rows words like 'contin', 'level', etc are missing. It depends on the setting options in the 'Text file options' dialog (see Figure 18).

The file lines contain:

3.10.1 Properties:

Info Level	10001	3.906	754
Info Contin	10014	62.500	200
Info Digital	11003	62.50	3

3.10.2 Data:

Each data line contains a header and a data (block samples are represented by the decimal equivalent of 16-bit signed binary numbers).

3.10.2.1.1   For a Channel in Continuous Mode

For a channel in continuous mode the header contains:

Contin   10015   20

3.10.2.1.2   For a Channel in Level Mode

For a channel in Level mode the header contains:

Level   10001   10   10   1440   2161

3.10.2.1.3   For a channel in External Trigger mode

For a channel in External Trigger mode the header contains:

ExtTrg   10001   10   40   2161

3.10.2.1.4   For a Digital Channel Trigger

For a Digital Channel Trigge**r** the header contains:

Digital   11003   0   40

3.10.2.1.5   Erase Information:

Erase   10007   1179   1243

Erase Board=1   Digital port=0   1179   1243

```
a0511.txt - WordPad
File  Edit  View  Insert  Format  Help

Courier New                    10    B  I  U

· · 1 · · 2 · · 3 · · 4 · · 5 · · 6 · · 7 · · 8 · · 9 · · 10 · · 11 · · 12 · · 13·

D:\ALPMAP\VLAD\NEWMAP\A0511.MAP Thr  05/11/1998    14:31:15
Info Contin        10010        12.019       754
Info Level   10011        12.019       50
Contin       10010            3060080              -3024 -4464 -44
Level        10011      24    24    2819   3055296 18704 16000 77
Contin       10010            3060832              -4640 -3792 -16
Level        10011      24    24    2819   3055327 18256 17392 10
Level        10011      24    24    2819   3055358 17312 18304 12
Level        10011      24    24    2819   3055390 18720 14752 58
Level        10011      24    24    2819   3055421 18624 16464 85
Level        10011      24    24    2819   3055452 18032 17696 11
Level        10011      24    24    2819   3055483 16944 18464 13
Level        10011      24    24    2819   3055515 18768 15312 66
Level        10011      24    24    2819   3055546 18512 16864 93
Level        10011      24    24    2819   3055577 17760 17984 11
Level        10011      24    24    2819   3055609 18592 13984 46
Contin       10010            3061584              -2816 -368 2112
Level        10011      24    24    2819   3055640 18720 15824 75
Level        10011      24    24    2819   3055671 18320 17248 10
Level        10011      24    24    2819   3055702 17440 18240 12
```
Figure 27: Text File Contents

3.11 Matrix Text File Structure

Each matrix text file contains header and data rows. Separators between the fields in a row are spaces and tabulators. Header rows contain date and time for the beginning of acquisition, number of channels and sampling rates. The number of data rows in the file equals to the timestamp of the fastest channel (see *Figure 28*). Data rows contain samples. For channels in the Level or External Trigger mode, the first sample from the post trigger is followed by the character '!'.
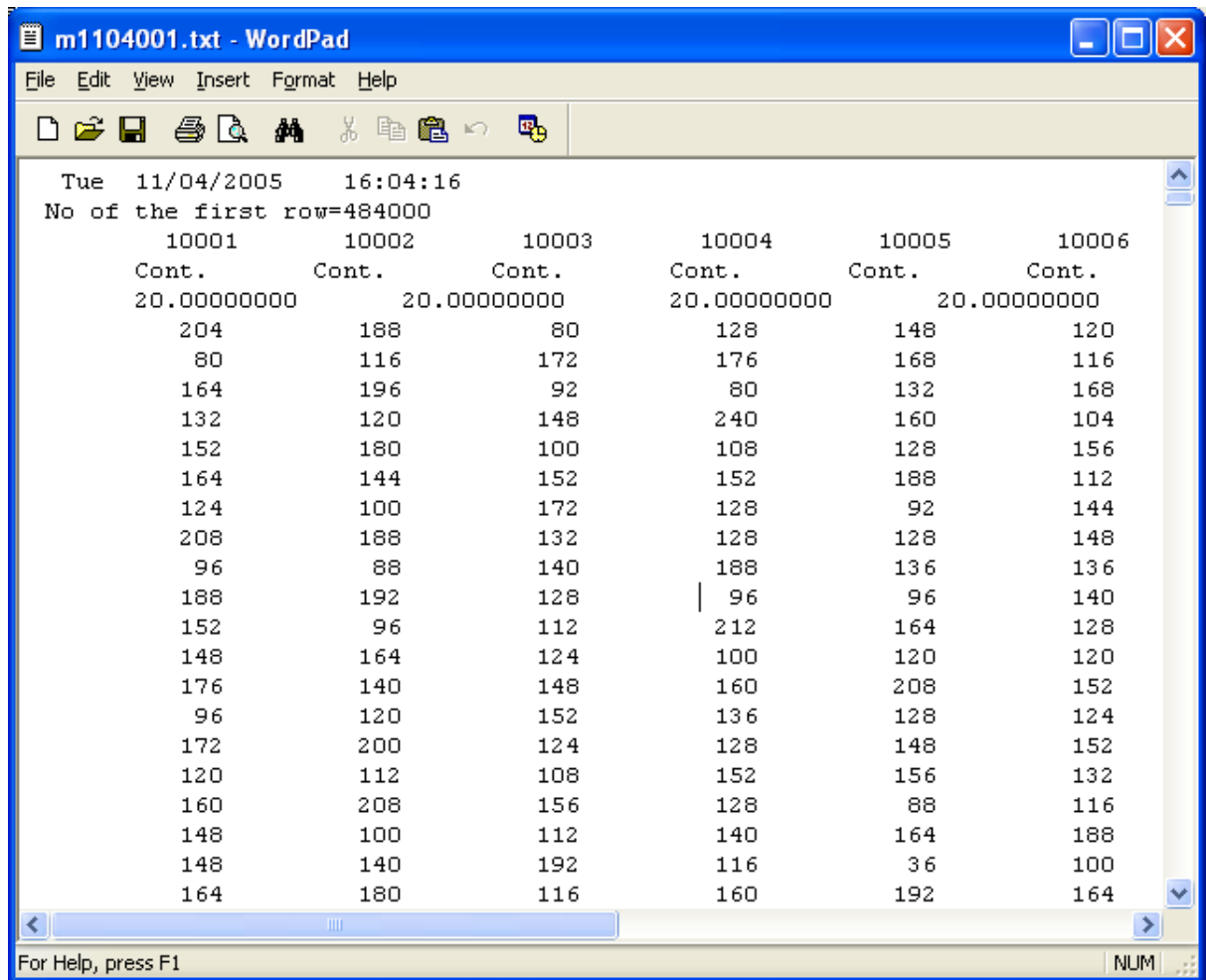
Figure 28: Sample of matrix text file contents

4 <u>POST PROCESSING</u>

The post-processing module enables the user to pass over the recorded map files applying data reduction, conversion, and online to offline tagging, as needed.

The post processing stage segments the data according to a detection algorithm keeping only the waveforms. This newly segmented data channel is compared against the online sorting and tagging each waveform with the appropriate online class.

The output of this stage can be one of the following file formats:
- ALPHA OMEGA - .map
- CED - .smr
- PLEXON - .plx

The data acquisition system (AlphaLab or AlphaMap) is able to save the continuous raw data for each channel and simultaneously save the real time sorting events. While the user can select the resulting file and continue with it to the AlphaSort (Alpha Omega Offline Sorting), for other offline sorters, such as Plexon Offline Sorter, the user needs to segment the continuous channel into waveform segments tagging each segment with a matching real time class.

Because segmentation is done offline, the user can be sure that no waveform or potential spike is lost due to a wrong threshold during the recording session.

The following are all the functions that can be done using the Post Processing:

- Perform file conversion
- Select a subset of channels
- Rename channels
- Perform continuous channel segmentation
- Perform tagging of online detections to segmented data

To open the Post Processing main window, select "File → Post Processing …".

The window has 5 panels, which will be discussed later on: (See *Figure 29* below)

- ❖ **Source**
- ❖ **Workspace file**
- ❖ **Target**
- ❖ **Statistics**
- ❖ **Segmentation option**

4.1 The main Post Processing Window
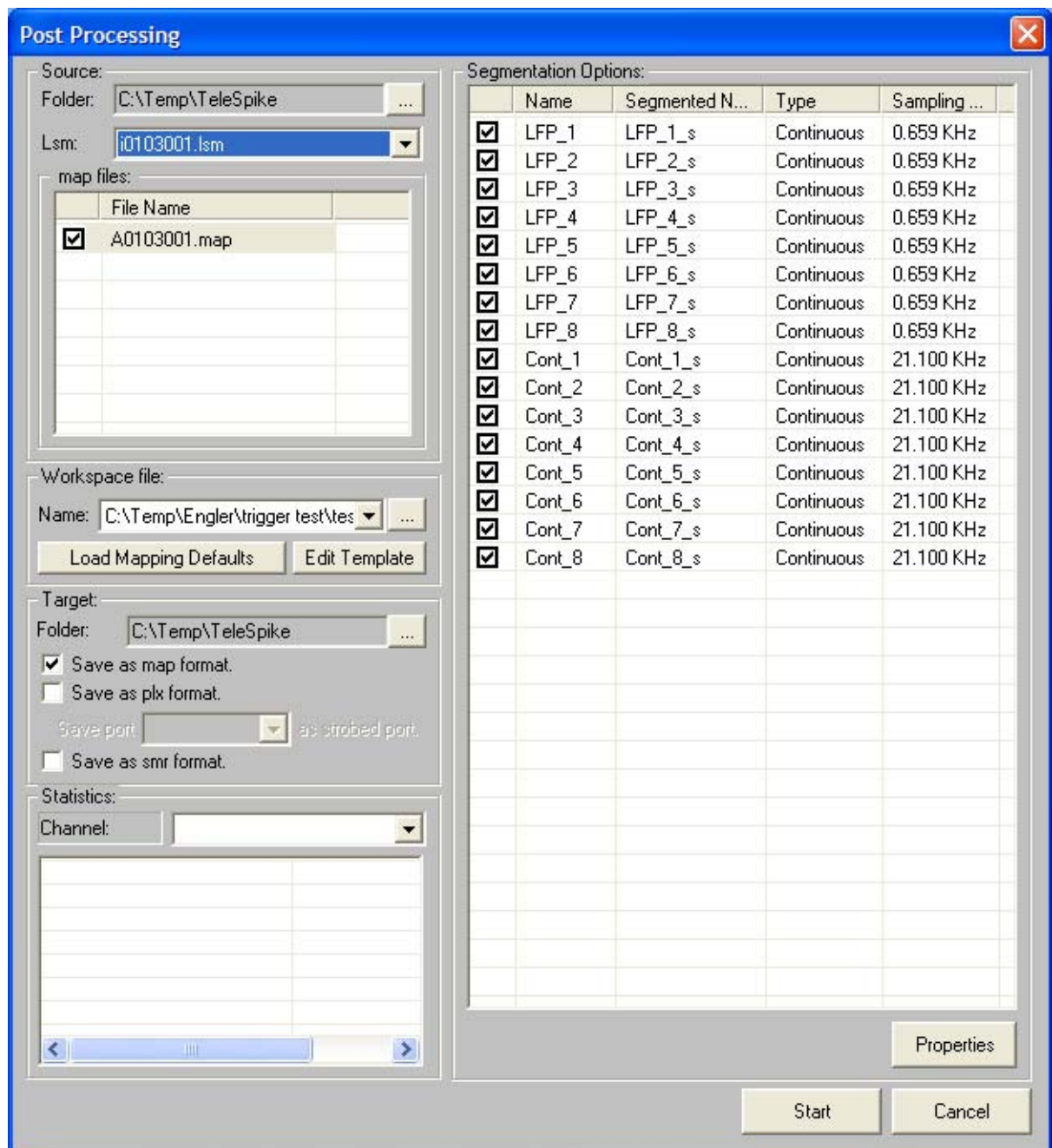
Figure 29: File Post Processing Main window

4.1.1 Source

Folder:

Browse to the directory where your files are located

Lsm:

Select the desired lsm file. If at the time that you select an lsm file there was a configuration file name specified in the Workspace area, and the selected configuration file is not compatible with the lsm file selected, the message shown in *Figure 30* appears, and the Workspace file name is cleared allowing you to either browse for and select an existing configuration file that is compatible with the lsm file, or to create a new configuration file.
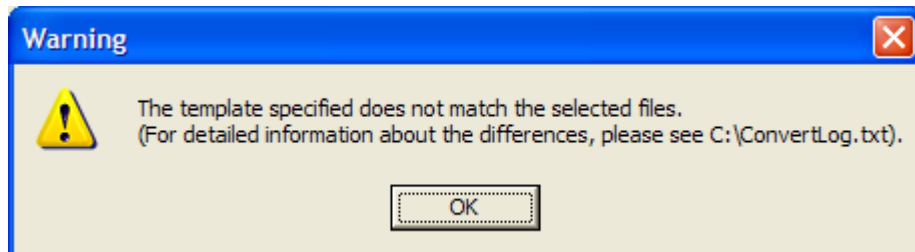
Figure 30: Invalid Configuration File Message

Map files:

The name of the map file(s) listed inside the specified ".lsm" file automatically appears in this field.

4.1.2 Workspace File

Name:

Specify the name of a conversion options file, or browse to the directory where it is located. This workspace will save all your selected options and settings for further usage in the future. Hence you don't have to set all the parameters next time.

If no file is selected (name filed is empty, you can either browse and open an existing file or you can start a the definition of a new configuration file (Workspace). To Start a new Workspace: Click on **"Edit template"** button. If no file was already selected, the message in *Figure 31* will appear**.** Click **"OK"** and move to the next step to name and save your new Workspace. This process is explained further down.

Note: the Workspace files format is "***.ini**"
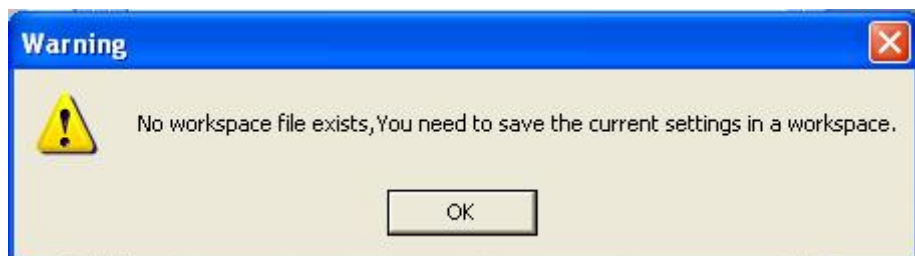
Figure 31: Warning Message - Wrong Conversion Option

Load Mapping Defaults:

Clicking this button loads the mapping defaults. Mapping defaults refers to mapping the real time detections to specific continuous analog channels. See Event channel

mapping column in the "Workspace Configurations" window shown in *Figure 34* below.

Edit Template:

Clicking this button opens the "Workspace Configurations" window (*Figure 34*): (Or to start a new Workspace as described above). This option will be discussed further on.

4.1.3 Target

Folder:

Browse to the destination directory where your output file should be saved.

Save Options Checkboxes:

Select one or more output formats by clicking one or more of the following available check boxes:

- Save as map format.

- Save as plx format.

- Save as smr format.

When plx format is selected, specify which digital port should be marked as a strobed port for Plexon Offline software.

4.1.4 Statistics

Channel:

Select the desired channel from the drop-down menu list you wish to observe while processing is being executed. Every time post processing is started, and the segmentation and tagging option is activated, Post Processing generates statistical data for each channel showing how many spikes were detected, how many matched each of the Online class specified, and how many additional possible spike may be processed in addition to what was detected in real time. The information shown here is not saved anywhere, and will be erased when Post Processing is closed or started on a different file. *Figure 32* show an example of statistical data foe a channel.
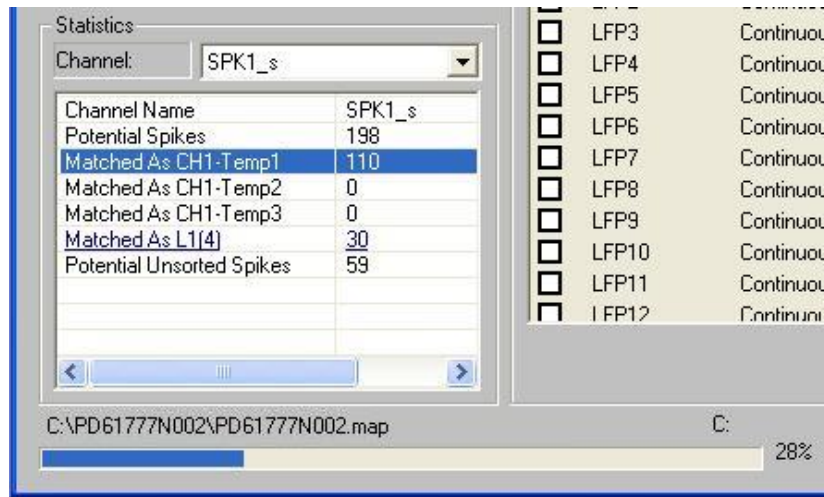
Figure 32: Tagging Statistical Data

4.1.5 Segmentation Options

The list of channels under the "**Segmentation Options"** is populated with continuous channels that have a name specified in the "**Segmented name"** column in the "**Workspace Configurations"** window.

Checkbox:

Click inside the checkbox to specify which channel out of the list you wish to do segmentation on.   This

Name:

Name of continuous channel as it appears in the "**Workspace Configurations**" window under the "**New name**" column.

Segmented Name:

Name of the segmented channel in the output file. This name cane be altered also in the "**Workspace Configurations**" Window

Type:

Type of channel. This will always be continuous.

Sampling Rate:

The Sampling rate of the channel.

Properties Button:

Select one or more of the displayed channels then click the **Properties** button. The **"Channel Properties"** window opens. See *Figure 33.* Fields in this window are explained in section *4.2* below.

Start and Cancel buttons:

To start post processing press the **Start** button, and to cancel at any time press **Cancel.**

4.2 Channel Segmentation Properties

The channel segmentation properties window allows you to define how the segmentation and tagging for each channel will be done. It will tell the system what threshold to use, how much data to extract when the threshold is crossed, and how to match online detection classes to the segments.
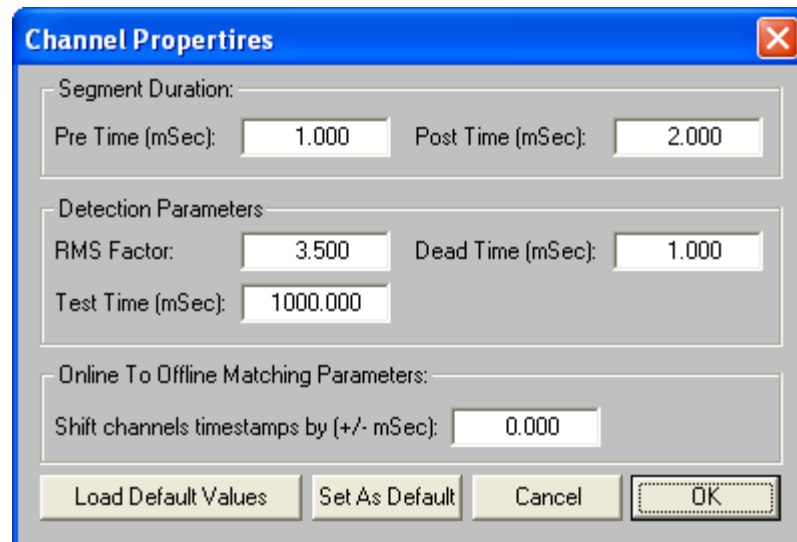
Figure 33: Channel Properties Window

Segment Duration:

In this section you will be able to define how much data to extract when the threshold is crossed. You will specify how much time before the crossing and how much time after.

- o   ***Pre Time [mSec]:*** *Time before crossing the threshold*
- o   ***Post Time [mSec]:*** *Time after crossing the threshold*

The total of the Pre and Post times will be the duration of the spike saved to the output file.

Detection Parameters:

In this section you will be able to define the threshold that will be used to extract the spike. The threshold is set by the means of a multiplier of an RMS level for a certain specified time.

RMS Factor: *The multiplier of the RMS level that will be used as a threshold.*

Test Time [mSec]: *Total test time that will be used to calculate the RMS level in mSec.*

Dead Time [mSec]: *Minimum time between consecutive detections.*

Online to Offline Matching Parameters:

Shift channels timestamps by [+/- mSec]: *Used to synchronize detected data segments to online detection times. After shifting the time stamp of each*

detected segment by the specified shift time, it is compared with the online detections, and if it is within 0.5 mSec from any of the online detection, this segment is tagged accordingly. The time stamp of the segment is the RMS threshold crossing time.

Load Default Values: *Load the current default settings*

Set As Default: *Set the current settings as default settings for all channels*

Cancel: *Click to quit without making changes to current settings*

OK: *Click to confirm your settings*

4.3 Workspace Configurations

The **"Workspace Configurations"** window allows the user to define a channel subset for conversion, another set for segmentation, the mapping of online detections, and finally it allows renaming channels.

To access the **"Workspace Configuration"** window shown in *Figure 34*, click on the **"Edit template"** Button.

The window is divided into 3 major panes, and a set of buttons. The panes are:

1. Continuous channels pane

2. Segmented channels pane

3. Event channels pane
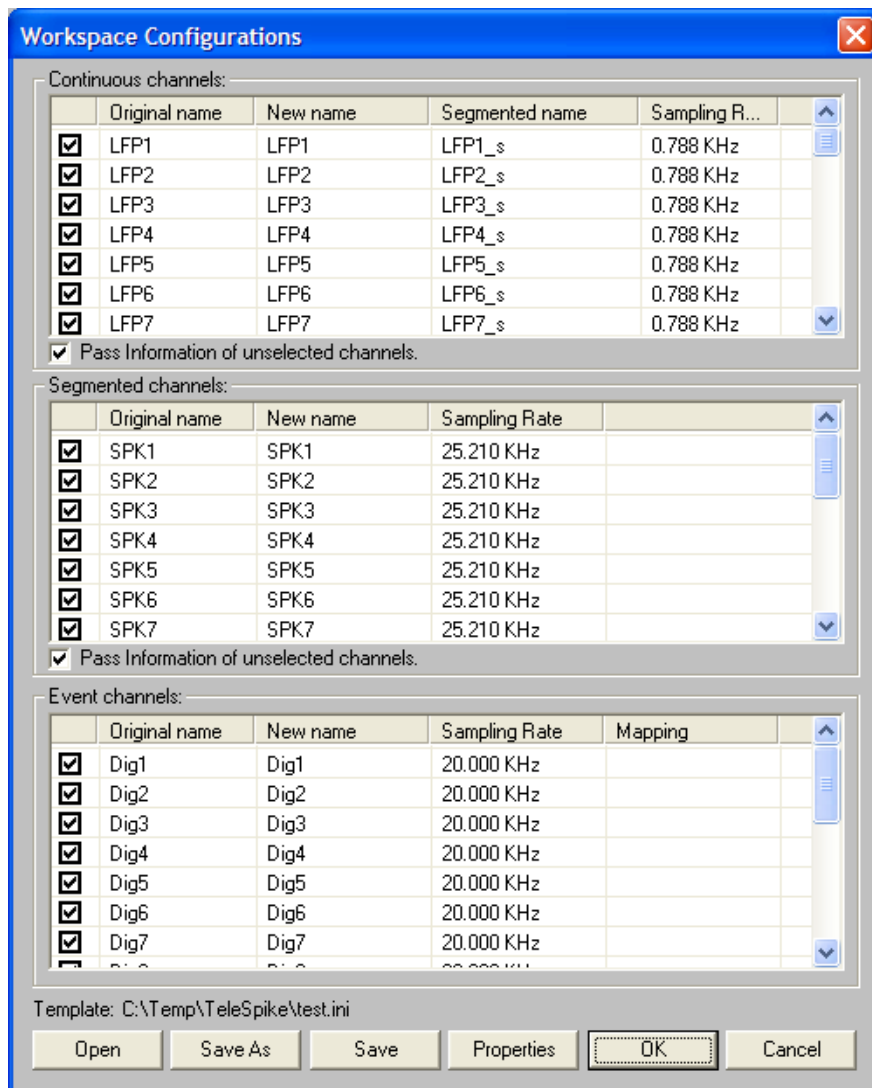
Figure 34: Workspace Configurations Window

Before we discuss the 3 panes, we will first explain the buttons:

> **Open –** Open a configurations file
>
> **Save As –** Save the opened configurations file under a new name
>
> **Save –** Save the opened configurations file
>
> **Properties –** Select any one or a group of consecutive channels from any one of the 3 panes and press the **Properties** button to make changes. It is also possible to open the properties window of any channel by double clicking on it. *Figure 35*, *Figure 36*, and *Figure 37* below show the properties windows of the continuous, segmented, and event channel respectively.

The **"Pass information of unselected channels"** check box under the Continuous and the Segmented channel lists, says that the headers of the unselected channels should be passed to the output file.
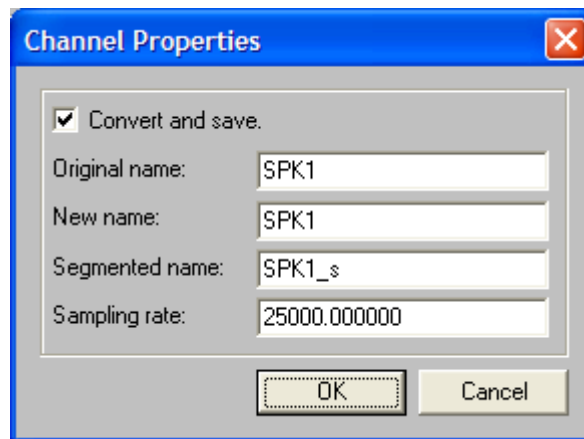
Figure 35: Continuous Channel Properties window
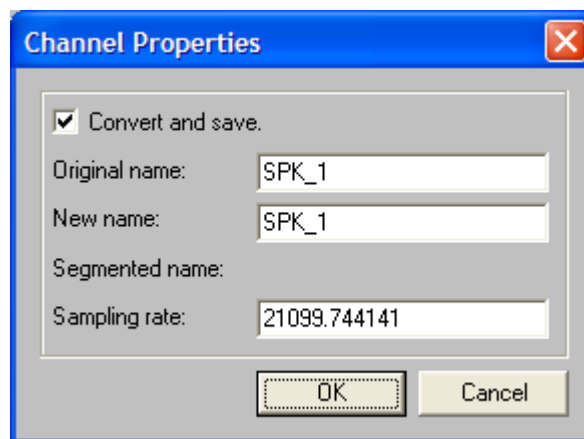
Figure 36: Segmented Channel Properties window
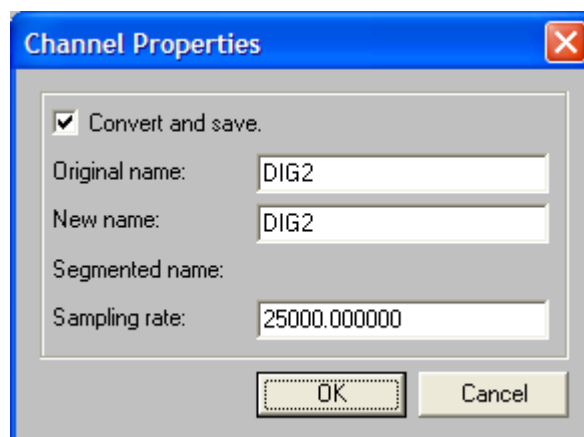
Figure 37: Event Channel Properties window

Allowable changes are explained for each type of channels below.

OK – Save changes to the opened configurations file and exit

Cancel – Exit without saving changes after the last save

Channels Panes

In all 3 panes the following options exist:

Check Box – This box is used to select/unselect the channel to be converted and written to the output file. It is possible to select several channels and click on one of the check boxes of the selected channels to select/unselect them all. Selecting/unselecting channels can alternatively be done from the continuous channel properties window using the "**Convert and save**" check box.

Original name – This filed shows the channel's name as it exists in the file. This is an informational field and cannot be changed.

New name – This filed indicates what the channel's name will be when it written to the output files. By defaults it is set to the Original name. This field can be changed only through the properties window. If several fields are selected and a new name is given, all selected channels' "**New name**" will be changed to the new name entered, and appended with "_n", where n is a sequential number starting at 1.

Sampling Rate – This filed shows the channel's sampling rate as it exists in the file. This is an informational field and cannot be changed.

In addition to the above fields certain panes have additional fields as follows:

Additional fields in the Continuous channels Pane

Segmented name – This filed has two functions as follows:

1. Its existence dictates that this channel will be available for segmentation and will appear in the "**Segmentation Options**" list shown in *Figure 29* above. Deciding if it will be segmented or not will be done by checking the check box in that list.

2. It will specify what the segmented channel name will be in the output file if it was selected for segmentation.

By defaults this field is set to the Original name appended with "_s". This field can be changed only through the properties window. If several fields are selected and a new name is given, all selected channels' "**Segmented name**" will be changed to the name entered, and appended with "_n", where n is a sequential number starting at 1.

Additional fields in the Events channels Pane

Mapping – This filed is used to map online detection channels to continuous channels. This information will be used to tag the segments extracted from the continuous signal with the online detections for that channels.

Form example, under the AlphaLab system, the continuous signal of channel number one is recorded in the Acquisition system with a channel name of SPK1. The Real Time Sorting system also sorts channel number 1 and sends the online detection times to the Acquisition system, up to 4 classes (3 templates and one level), and the Acquisition system logs these event channels under the names SPK1_T1, SPK1_T2, SPK1_T3, and SPK1_L. For the Post Processing to be able to do the correct tagging it is necessary for us to tell it that SPK1_T1, SPK1_T2, SPK1_T3, and SPK1_L are the detections for the continuous channel SPK1, and this is exactly what Mapping comes to do.

To change the Mapping field for a specific channel select the channel with a single click, and then click on the mapping field for that channel. This second click will reveal a drop down list button on the mapping field. When this drop down button is clicked it will show a list of continuous channels available for selection. Select one of them by clicking on it. It is also possible to select several channels first and then click on the Mapping field of one of the selected channels to reveal the drop down button and select the continuous channel for all the selected event channels. This is exactly what is shown in *Figure 38* below.

Alternatively, for files that were recorded using the AlphaLab system with standard settings, it is possible to simply press the "**Load Mapping Defaults**" button shown in *Figure 29* under the "**Workspace file**" section of the main Post Processing window. Pressing this button before clicking the "**Edit Template**" button to go into the "**Workspace Configurations**" window will set all the mapping fields of the Event channels according to the default AlphaLab setting.
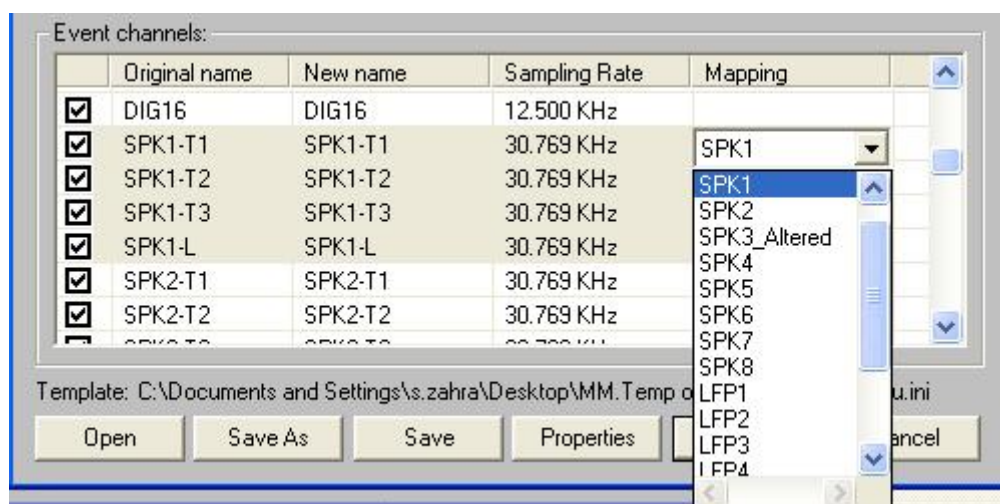

Figure 38: Event Channel Mapping

5 <u>FILE MERGING</u>

File merging allows the user to:

- **Merge a "*.lsm" file with one or more "*.lsm" files**

- **Merge a "*.map" file with one or more "*.map" files**

- **Merge any number of "*.lsm" files with any number of "*.map" files**

The user can also specify the order of the merging process, the name and location of the output files, the size and time limits on each of the output files, and finally how the files will be merged; in parallel or consecutively.   When ".lsm" files is selected for merging, the map files within the ".lsm" file are treated as one file.

5.1   Starting the Merging utility

To start the Merging utility, from the main Map Converter interface, Click **"File / Merging …",** and the "Merging" window shown in *Figure 39* opens. The Merging window has two main panes, "**Input files**" and "**Output files**". These two panes are explained below.
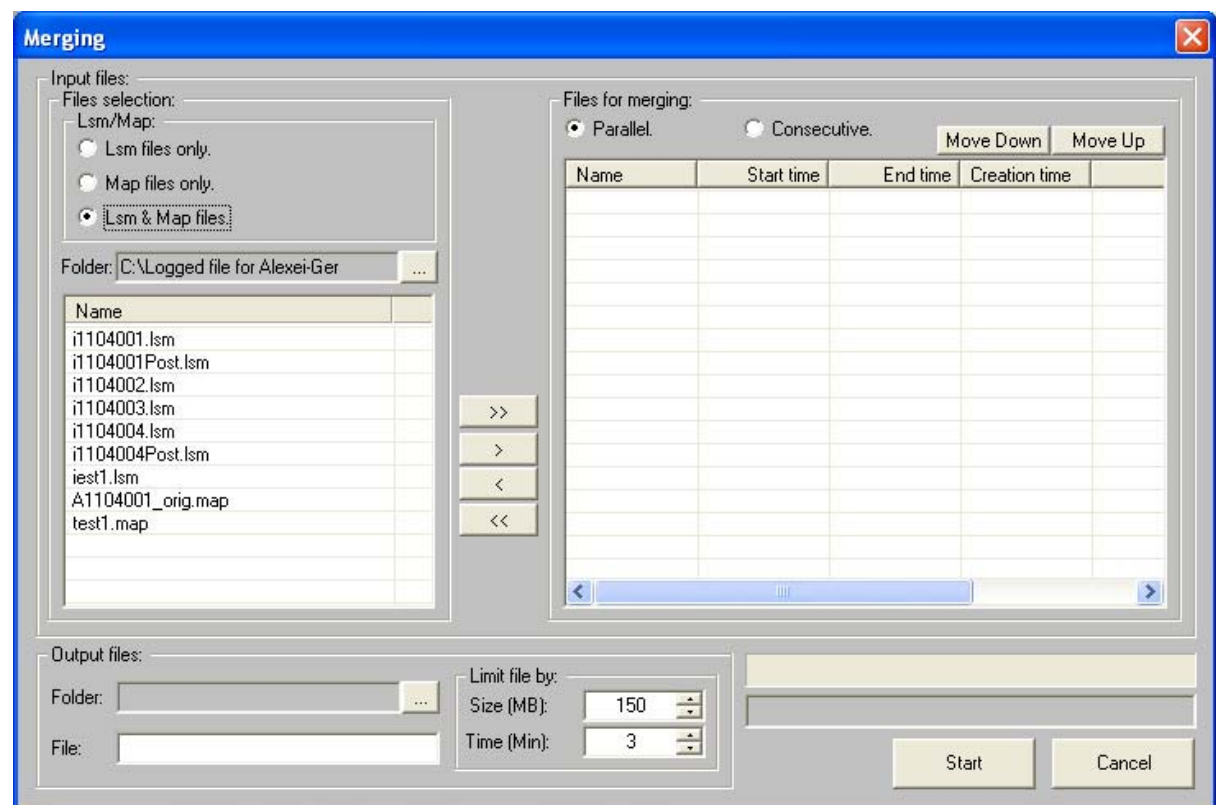

Figure 39: File Merging Main Window

5.2 Merging window buttons

Before we explain the different panes, we will first explain the buttons available in the Merging interface outside of the two main panes.

Start – Start the merging process. When ready to perform the merge, click the **Start** button. Once the merge process starts, the following will occur:

1. The scanning process starts and the **"Start"** button is replaced with a **"Stop"** button.

2. The message *"Scanning…"* appears below the progress bar (See *Figure 40*).
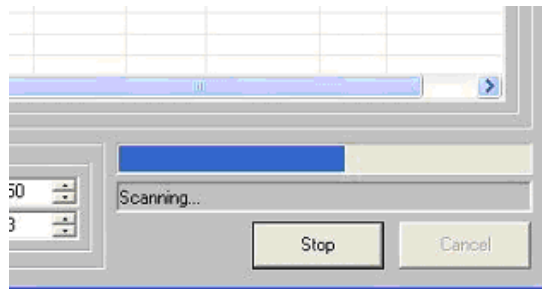
Figure 40: Scanning process

3. Once the scanning process is complete, the merge process starts, the name of the output file appears below the progress bar, and the progress bar shows the progress of the merge process (**See** *Figure 41*).
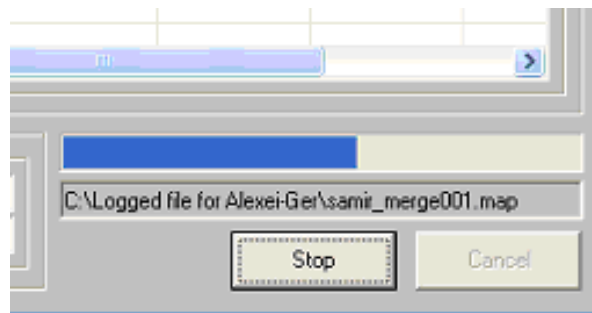
Figure 41: Merging process

Cancel – Close the merging window. If merging is started this button becomes inactive.

5.3 Merging window panes

As mentioned above the merging window contains 3 main panes. These panes are explained below.

5.3.1 Input files Pane

In the "**Input files**" pane has two sections; the **Files Selection** section and the **Files for merging** section. The **Files Selection** section allows you see the contents of one folder at a time, and once the list of files is displayed, you will be able to move some or all the files to the **Files for merging** section for merging.

The following is a list of the buttons available within the **Input files** pane

>> – Select all files listed in "**File selection**" list on the left side for merging and pass them to the "**Files for merging list**" on the right side.

> – Select the highlighted file or files from the "**File selection**" list on the left side for merging and pass them to the "**Files for merging**" list on the right side.

< – Remove the highlighted file or files from the "**Files for merging**" list on the right side.

<< – Remove all files from the "**Files for merging**" list on the right side

5.3.1.1   Files Selection

Lsm/Map" - click the radio button for the type of files you wish to see in the Name list – **".lsm" only, ".map" only or both**. To explain how this works let us take an example:

A certain folder selected in the **Folder** field contains map file and lsm files as follows:

i2401001.lsm in which the following map files are included

A2401001.map

A2401002.map

A2401003.map

A2401004.map

A2401005.map

i2401006.lsm in which the following map files are included

A2401006.map

A2401007.map

Two additional map file that do not have an lsm file

A2401006Post.map

A2401007Post.map

Figure 42 below shows how the name list changes when each of the radio buttons is selected. In short, the first two options are self explanatory, and the third option, ***Lsm & Map files*** lists all the lsm files, only the map files that do not belong to any lsm files.
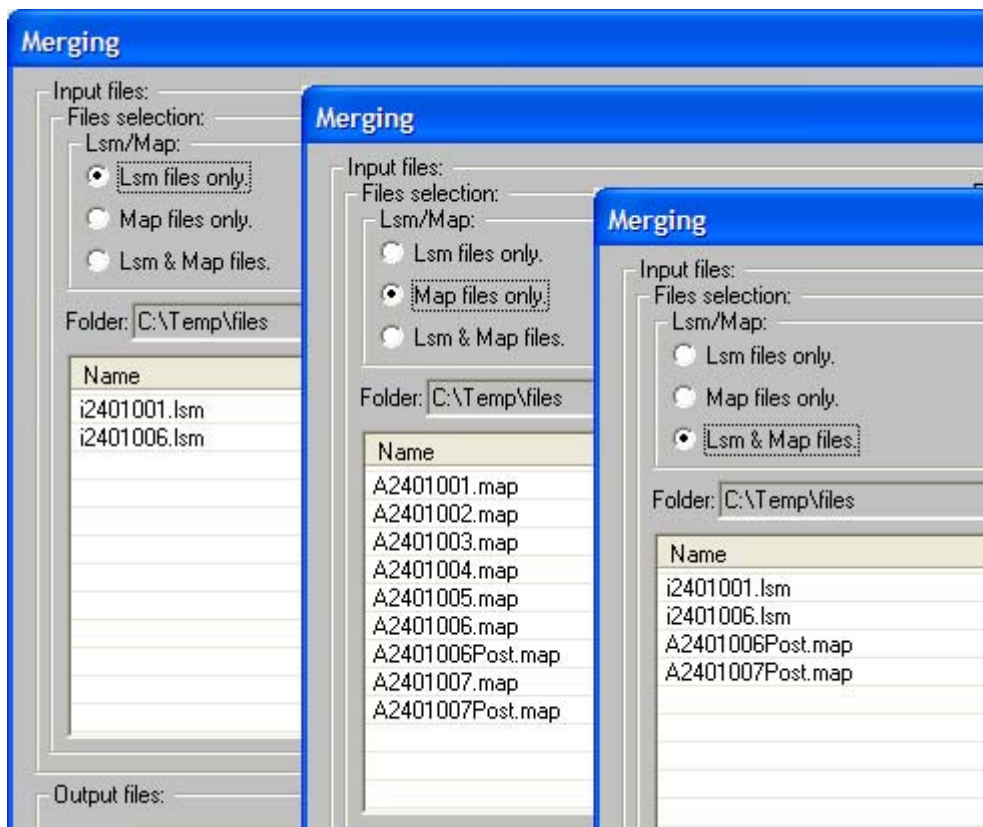

Figure 42: File type selection

Folder - Specify the folder where files are located

Name – A list of files in the selected folder. Select one or more files from the list and use the ">" button to add them to the "**Files for merging**" list on the right side, or press the ">>" button to add all files in the list.

It is possible to list files in a certain folder and move some or all of them to the "**Files for merging**" list, and then select a different folder and add more files from this new folder to the "**Files for merging**" list. The system automatically keeps track of what files were already added from each directory and does not allow adding them again.

Warning: Extra care should be taken when lsm and map files are merged together, as when an lsm file is selected, all map files that belong to this lsm are handled as one file and here the system may allow having duplicate data.

5.3.1.2   **Files for merging**

All values displayed in the file list are self explanatory and informational except for the Gap/Shift column, which may be modified by the user. The **Start time** and **End time** values are in seconds. Once a list of files has been moved to this section, it is possible to do the following before you press the start button:

1. Decide how files will be merged, in parallel of consecutively – To do this selects the "**Parallel"** or **"Consecutive"** radio button to specify the order of the merging process.

2. Change the order of the files on the list. This may be very important when merging files consecutively. There are two ways to change the list order, either by selecting a file from the list and using the **Move Down** and **Move Up** buttons, or by clicking on certain column captions. It is possible to sort the list by **Name**, **Start time**, or **Creation time** by clicking on their column captions.

3. Control how much Gap to add between files when merging consecutively, or how much time to shift files when sorting in parallel. This function will allow you to line things up if necessary.

5.3.2 Output files Pane

In the "Out**put files**" you specify the destination and name of the merged output file:

1. Under "Folder", specify the destination directory for your file.

2. In the "File:" field, specify the name of the merged output file. The output is always an lsm file a one or more map files. The output map files will take the specified file name, appended with an ordinal number starting at 001.

Limit Files By

This section will allow you to control the size of the output files by specifying a time and size limits for output file, and the current output file will be closed and a new file will be opened for output whenever either of the limits is reached.

1. Under "Size [MB]", specify the maximum allowed size for each output file. The system has a maximum size limit of about 3.6GB per file, so if you specify a size larger than this it automatically breaks on that size.

2. Under "Time [Min]", specify the maximum time allowed for each output file