

Instruction Manual for the Automatic Fire Programming Software V1.1

(TirAutoDirect_960TC_V1.05_25062011.exe) updated 31th January, 2011.

1. Introduction

This software allows you to program the tables of the PROFESSIONAL DIGITAL FIRING TABLE (Hereafter called LPTA) that operate the automatic controls of the following ARTS FRANCE firing equipment, which have been on the market since 1999: 8 120 points system receivers (with 4 groups of 30 points relay units), for a total of 960 firing points.

A particular software (TirAutoIndirect_4000TC_V1-06_07072011.exe) exists for the SEQ32 modules. The igniters can then be placed as near as you wish to the SEQ32, which operates the entire system. Operating this software is the same as the one described below and which concerns direct firing, except that the allocation of the 32 SEQ32 channels is added automatically.

The relay unit Relais30 controls an SEQ32. This relay can thus be active 32 times to utilize all the SEQ32 outputs.

It is thus possible to operate 960 points per zone (30x32) within the limits of 4000 points in all for the 32 possible zones.

In case of a 0.1 second difference between two consecutive fires in the same area, the software automatically allocates the shot to the following relay unit Relais30.

To get the latest versions of the firing software and further information, please check the ARTS FRANCE websites on a regular basis:

www.artsfrance.com www.arts-france.com www.firing-system.info

The maximum duration of a show is 54 minutes, with a 0.1 second time unit.

One sole shot can be operated at the same time (See simultaneous shots solutions below).

Firing events are those of the "Time code" (Hereafter called TC), listed in a text document coming from the "Sound Forge Audio Studio 9 or 10" sound software, which is not included, but the license costs amount to less than 60€. The following explanations correspond to the version 9 of the software.

The LPTA allows you to place in the memory of the firing table the chronological list, firing events associated to firing geographical zones (1 to 32 possibilities).

A shot is triggered when a firing event in the memory has to same TC as the TC coming from the right side sound track of the show (TCvocal track), or from the internal time base of the firing table if the TCvocal is missing.

The sound file that was chosen for the show is imported on the left track in "Sound Forge (Track1)", and edited by using the various sound editing possibilities of the software. The TCvocal sound file is tuned for 0.1s and is imported on the right track (Track2 of "Sound Forge"). This will synchronize the firing with the music during the show. The left sound track will go the sound system management of the show and the right track will go to the automatic firing table for the TCvocal signal.

A preliminary step has to be done with the software to get the TC list, later imported in the programming software. This consists in placing pointers on the sound track for every firing event and naming each of them with the firing parameters (firing zone among 32, type of fire, etc.).

Each of the 32 zones corresponds to a 30 relay unit, controlled by a receiver. Thus, it is impossible to go over 30 shots per zone. If that was the case, a grouping of several zones on the same geographical areas must be done.

Attention:

This 32 zone topology allows you to allocate relay units as close as possible to the fire shots so that the ignition cables' length is shortened. A geographical zone requires a minimum of 1 receiver and 1 30 relay unit.

At the end of this artistic creation, the TCorigine file is edited by the sound software and copied/pasted to the LPTA.

The TCorigine firing events are then rounded up as close to 1/10th second as possible, ordered chronologically in a list and edited one by one in order to be allocated to the firing Zone, to a Delay (between the firing order and the visual effect of the shot) and to a Type of firework.

During this programming phase, it is possible to edit the parameters, add or delete a TC. When all the TCorigine are input, the software will automatically allocate the firing order for each firing Zone on the receivers and will create a programming file as well as a detailed text file, keeping thus a written record for the installation of the firing system on site.

In order to secure the contents of the firing file, a 5 digit number will be calculated (called the CRC) and will be associated with the file names. When the firing table is powered-on, the CRC is recalculated and displayed to check that the stored program is the right one.

This software runs on Windows XP. It is placed in a directory that must have at least the following files:

Nom	Type	Taille
comdlg32.ocx	Contrôle ActiveX	138 Ko
MSCOMM32.OCX	Contrôle ActiveX	102 Ko
msvbvm60.dll	Extension de l'application	1 361 Ko
TirAutoDirect_960TC_V1.05.e...	Application	144 Ko

Traduction Photo1

Name	Type	Size
Comdlg32.ocx	ActiveX Control	138Ko
MSCOMM32.ocx	ActiveX Control	102Ko
Msvbvm60.dll	Application extension	1361Ko

TirAutoDirect_960TC_V1.05.exe	Application	144Ko

2. Starting the software

On start, this window will be displayed:



Traduction Photo 2

Extraction des Times Codes = Time Codes Extraction

Copier selection TC = Copy TC selection

Mn = M Sec = S Diz = D

Créer un Time Code = Create a Time Code
Ouvrir un fichier de tir = Open a firing file
Programmer = Program
Quitter = Quit
Lier 1 TC et 1 Zone = Link 1 TC and 1 Zone
Suppression 1 ligne Time Code Filtré = Delete 1 Filtered Time Code line
Supprimer 1 Zone de la Liste détaillée = Delete 1 Zone from the Detailed List
Gestion des retards = Delay Management
Gestion des artifices = Firework Management
Modifier un retard = Delay Edit
Modifier un artifice = Firework Edit
Création fichiers de tir direct = Create direct fire files
NbTirs = NoShots
Fichier de Programmation/message = Programming File/message
TCorigine = TCorinigal
TCcorrigé= TCcorrected
Time Code Filtré = Filtered Time Code
Zones = Zones
Retard = Delay
Liste détaillée = Detailed List
Sauvegarde intermédiaire = Intermediary Save
Ouvrir une sauvegarde intermédiaire = Open intermediary save
Restitution = Return

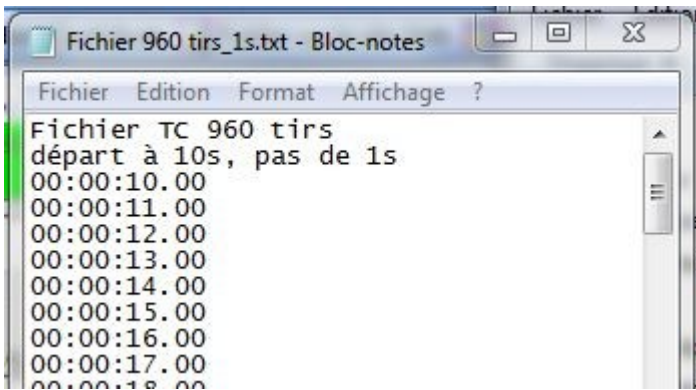
Initially, 5 buttons are active:

Time codes extraction, Create a Time code, Program, Open a firing file, Quit. 32 firing zones are included in the Zone list; they correspond to 8 receiver systems and 4 ARTS FRANCE firing equipment groups (A, B, C, D).

“1A” corresponds to a system 1 group A that already exists on the manual firing tables, “8D” is the last one.

3. Creating a firing file

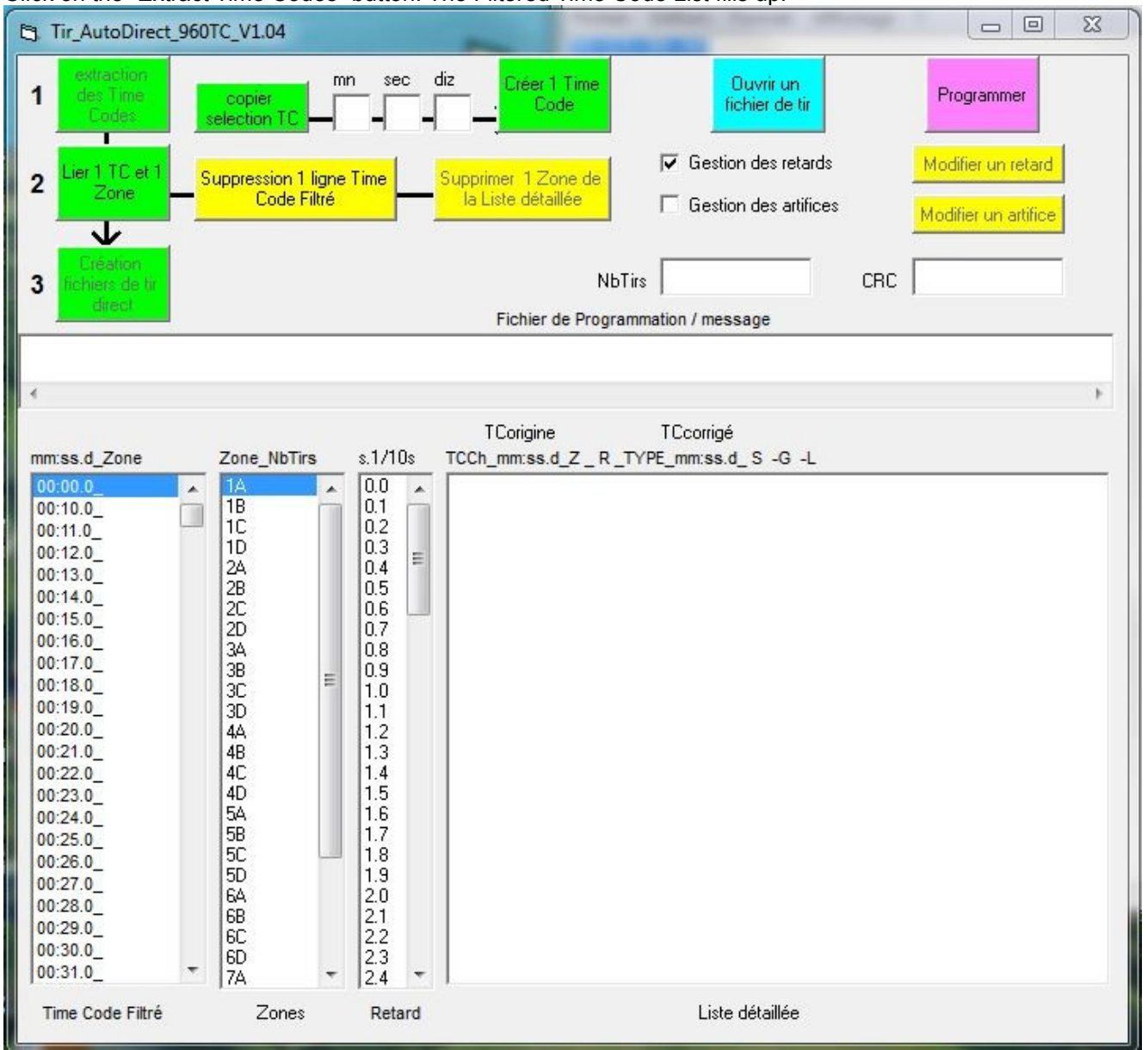
For demonstration purposes, we will be using the following TC file: “Fichier960tirs_1s.txt”. It corresponds to 960 shots spaced out at 1s, with the first shot at 10s. Open the “notepad” file within Windows XP



Traduction Photo 3

- Fichier = File**
- Edition = Edit**
- Format = Format**
- Affichage = View**
- File TC 960 shots**
- Start at 10s, space of 1s**

Copy the contents to the clipboard (CtrlA + CtrlC)
 Click on the “Extract Time Codes” button. The Filtered Time Code List fills up.



Traduction Photo 4

Extraction des Times Codes = Time Codes Extraction

Copier selection TC = Copy TC selection

Mn = M Sec = S Diz = D

Créer un Time Code = Create a Time Code

Ouvrir un fichier de tir = Open a firing file

Programmer = Program

Quitter = Quit

Lier 1 TC et 1 Zone = Link 1 TC and 1 Zone

Suppression 1 ligne Time Code Filtré = Delete 1 Filtered Time Code line

Supprimer 1 Zone de la Liste détaillée = Delete 1 Zone from the Detailed List

Gestion des retards = Delay Management

Gestion des artifices = Firework Management

Modifier un retard = Delay Edit

Modifier un artifice = Firework Edit

Création fichiers de tir direct = Create direct fire files

NbTirs = NoShots

Fichier de Programmation/message = Programming File/message

TCorigine = TCorinigal

TCcorrigé= TCcorrected

Time Code Filtré = Filtered Time Code

Zones = Zones

Retard = Delay

Liste détaillée = Detailed List

Attention :

A valid TC must have 11 digits like 00:01:02:03 which corresponds to 0h:1m:2s:3d. The maximum TC being 54m, the hours have to be 00: at all times. The programming software automatically extracts the TC starting with the "00:" digits and does only keep the 8 digits on the left (m:s:d). This text is eliminated, but it does not have to include the "00:" digits. The filtered TC rounds the closest 1/100 to 1/10s then.

The first shot is at 10s in order to overpass the maximum delay of 9.9s.

The TC "00:00.0" is added when it is missing from the list provided by the sound software. It cannot be deleted.

The "Link 1TC to 1 Zone" button then becomes active.

Chose or not to manage the fireworks types. Check the button in our case.

During this TCo allocation phase, the Up Arrow, Down Arrow and Enter are active.

Attention:

The management of the delays is practically mandatory to take into account the delay between the actual firing order and the visual effect which has to be in tune with the original TC (Filtered TC).

The management of the fireworks is very useful to obtain the final list as well as their location on the firing Zones. To do so, a 4 character code has to be defined for each firework that you use.

Click on TC 00:10.0 (10 seconds), select Zone 1A, the 1.0s delay and name the firework 0122. The number of shots for the 1A zone goes to 1 and the total number of shots goes to 1 as well.

“Z1A” is allotted to the filtered TC list and is filled as 005A_00 :10.0_1A_1.0_0122_00 : 09.0_

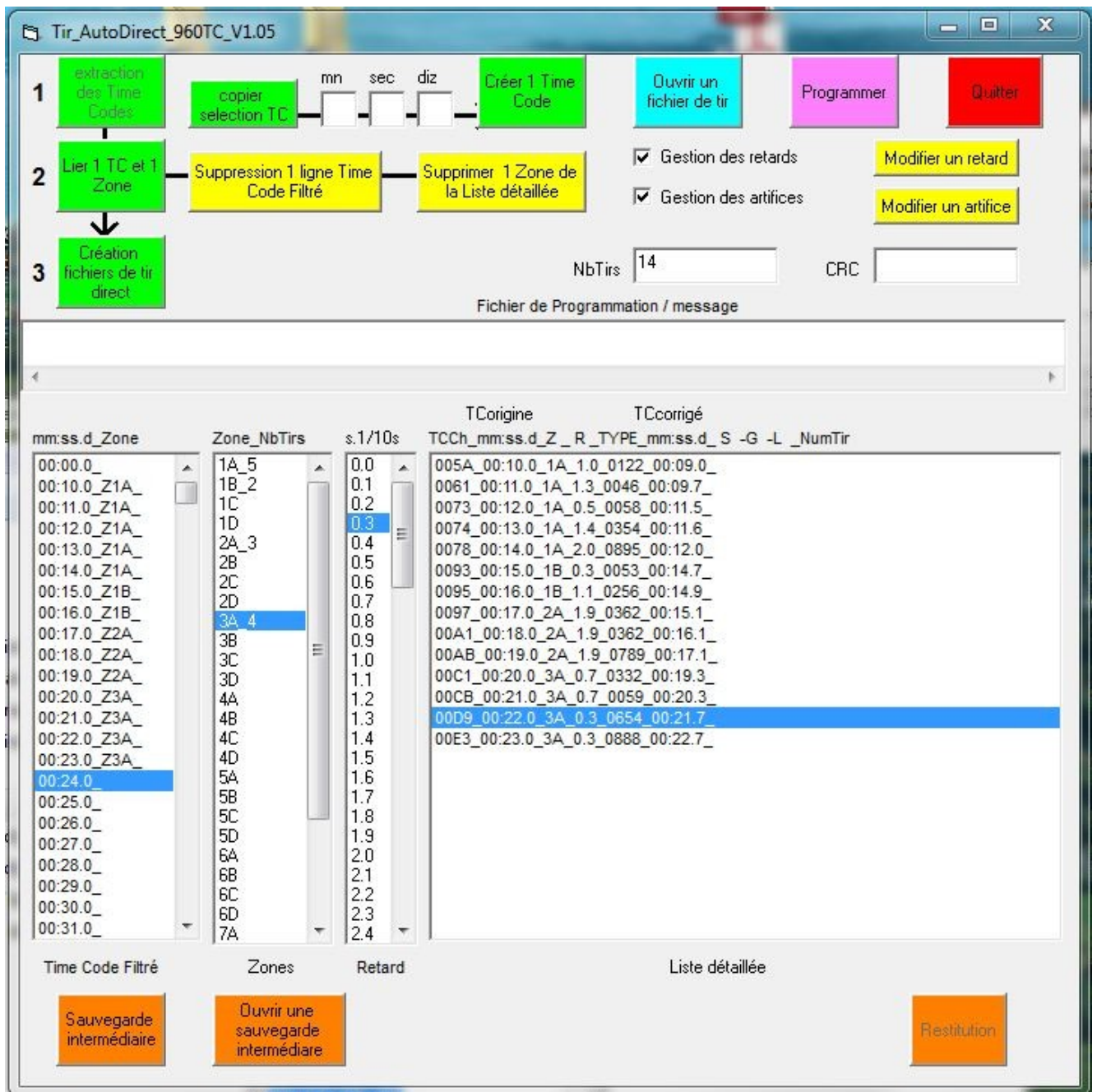
Forget about “005A” which is the hexadecimal value of the corrected TC.

The resulted information is: the filtered TCoriginal, the Zone, the Delay, the Type of firework, the TCcorrected (which goes off 1s before the TCoriginal to take into account the delay).

Do the same operation for all the other TCs.

In our example we have programmed a number of shots inferior to 30 for 4 Zones by using 3 system lines.

The result is the following:



Traduction Photo 5

Extraction des Times Codes = Time Codes Extraction

Copier selection TC = Copy TC selection

Mn = M Sec = S Diz = D

Créer un Time Code = Create a Time Code

Ouvrir un fichier de tir = Open a firing file

Programmer = Program

Quitter = Quit

Lier 1 TC et 1 Zone = Link 1 TC and 1 Zone

Suppression 1 ligne Time Code Filtré = Delete 1 Filtered Time Code line

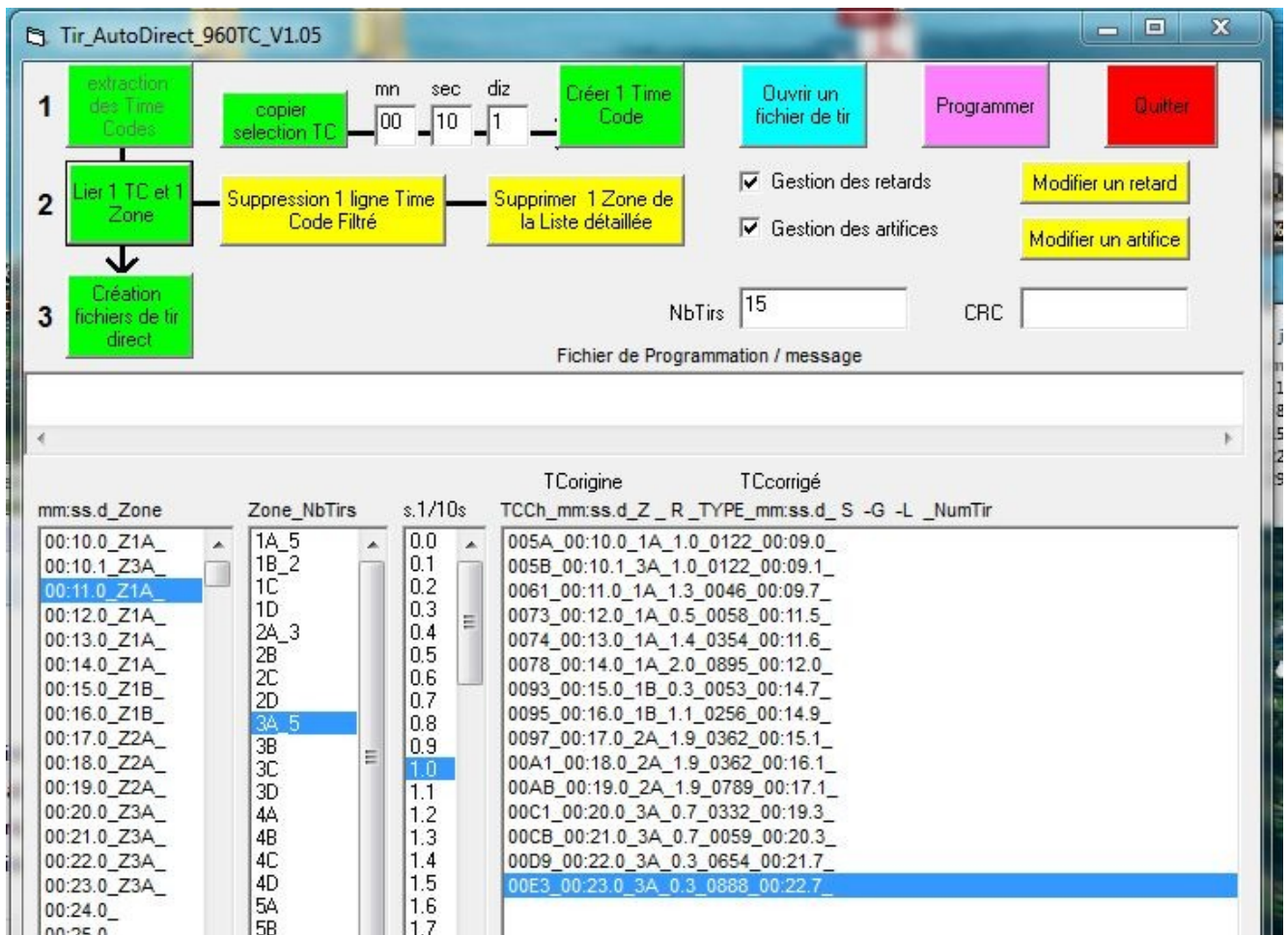
Supprimer 1 Zone de la Liste détaillée = Delete 1 Zone from the Detailed List

Gestion des retards = Delay Management
Gestion des artifices = Firework Management
Modifier un retard = Delay Edit
Modifier un artifice = Firework Edit
Création fichiers de tir direct = Create direct fire files
NbTirs = NoShots
Fichier de Programmation/message = Programming File/message
TCorigine = TCorinigal
TCcorrigé= TCcorrected
Time Code Filtré = Filtered Time Code
Zones = Zones
Retard = Delay
Liste détaillée = Detailed List
Sauvegarde intermédiaire = Intermediary Save
Ouvrir une sauvegarde intermédiaire = Open intermediary save
Restitution = Return

At this stage, it is still possible to make changes by using the yellow buttons.

For example, we will add 1TC after the 10s TC with a 0.1s delay to create a quasi-simultaneous start on the 3A Zone.

Click the TC 00:10.1, then the "Copy TC selection" button, modify the degrees, then click on create 1 Time Code. Allocate the same Delay to the same Type of firework.



Traduction Photo 6

Extraction des Times Codes = Time Codes Extraction

Copier selection TC = Copy TC selection

Mn = M Sec = S Diz = D

Créer un Time Code = Create a Time Code

Ouvrir un fichier de tir = Open a firing file

Programmer = Program

Quitter = Quit

Lier 1 TC et 1 Zone = Link 1 TC and 1 Zone

Suppression 1 ligne Time Code Filtré = Delete 1 Filtered Time Code line

Supprimer 1 Zone de la Liste détaillée = Delete 1 Zone from the Detailed List

Gestion des retards = Delay Management

Gestion des artifices = Firework Management

Modifier un retard = Delay Edit

Modifier un artifice = Firework Edit

Création fichiers de tir direct = Create direct fire files

NbTirs = NoShots

Fichier de Programmation/message = Programming File/message

TCorigine = TCorinigal

TCcorrigé= TCcorrected

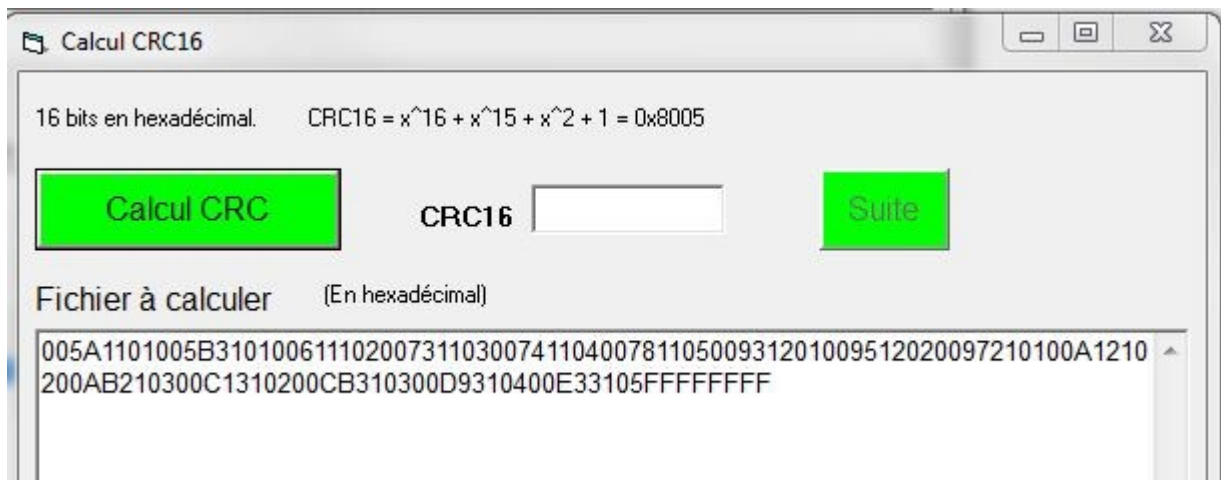
Figure 1

Do not hesitate to click on the intermediary save orange button during this creation phase, which might take a long time. This will avoid losing previous works in case of problems with your PC.

Once the tables are stable, we move to the creation of the direct firing files by clicking on the allocated button. The software automatically assigns the tracks on the relay units of the concerned Zones.

Attention! At this stage it will no longer be possible to modify these tables without opening them with the “Open a firing file” button.

We move on the creation of the CRC window, a 5 character result which is calculated by using the previous lists.



Traduction Photo 7

Calcul CRC16 = Calculate CRC16

16 bits en hexadécimal = 16 bits in hexadecimal

Calcul CRC = Calculate CRC

Suite = Next

Fichier à calculer = File to calculate

En hexadécimal = In hexadecimal

Click on « Claculate CRC »

The Windows file backup selection window opens, with a file name which is already filled in with the CRC and which you might need to complete with more details about this Firing File. (Added "tutorial" in our case).

Chose a location on your hard drive to save the file.

Attention:

This is a binary file (.bin extension). This is the file that will help you program the automatic firing table. It is important to leave the CRC in the file name to be able to recognize it at all times in the directory.

For your information, 00 5A 11 01 corresponds to 4 bytes that define a shot.

The characters, grouped 2 by 2 correspond to a hexadecimal coding of the values.

00 5A is the time of the first shot in absolute values (5A=9s=90 x 0.1s).

11 corresponds to the system 1 group A (group D will be 4).

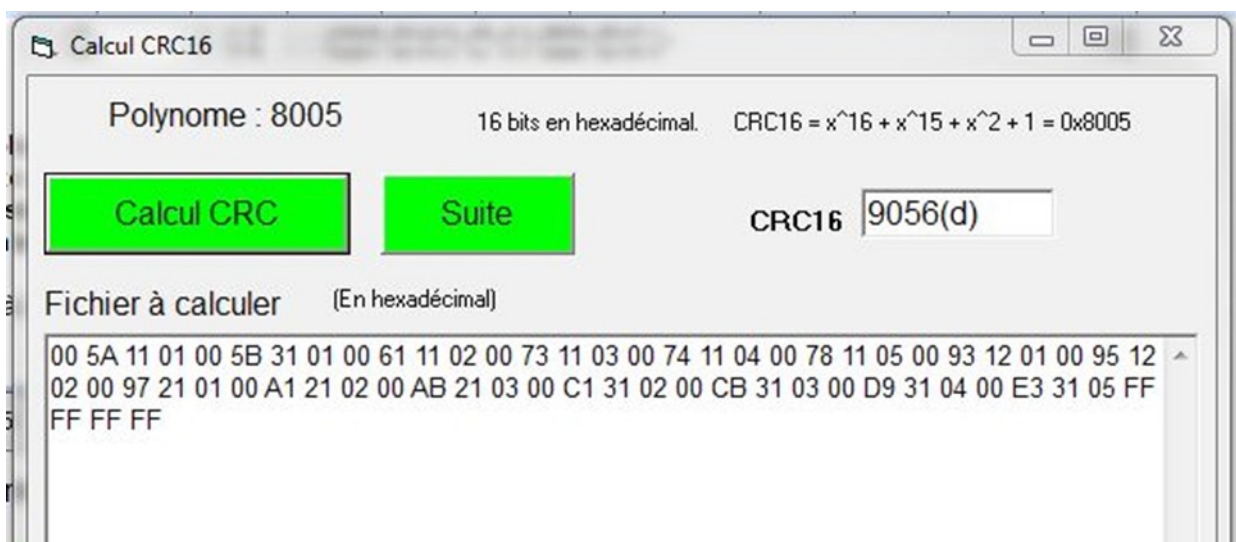
01 corresponds to the number of output lines of the 30 relay unit.

The end of the firing file is delimited by a 4 bytes FF.

Once the file is created, a new window opens to save the Detailed File (Added "tutorial" in our case).

Chose a location on your hard drive to save the file.

Double click on "Next".



Traduction Photo 8

Calcul CRC16 = Calculate CRC16

Polynome = Polynomial

Calcul CRC = Calculate CRC

Suite = Next

Fichier à calculer = File to calculate

En hexadécimal = In hexadecimal

The window containing the lists appears, filled in with the System, Groups, Lines and CRC assignments.

1 extraction des Time Codes — copier selection TC — mn: 00 — sec: 10 — diz: 1 — Créer 1 Time Code — Ouvrir un fichier de tir — Programmer — Quitter

2 Lier 1 TC et 1 Zone — Suppression 1 ligne Time Code Filtré — Supprimer 1 Zone de la Liste détaillée — Gestion des retards — Modifier un retard — Gestion des artifices — Modifier un artifice

3 Création fichiers de tir direct — NbTirs: 15 — CRC: 9056(d)

Fichier de Programmation / message

mm:ss.d_Zone	Zone_NbTirs	s.1/10s	TCorigine	TCcorrigé
00:10.0_Z1A_	2D	0.0	005A_00:10.0_1A_1.0_0122_00:09.0_S1-GA-L01_1	
00:10.1_Z3A_	3A_5	0.1	005B_00:10.1_3A_1.0_0122_00:09.1_S3-GA-L01_2	
00:11.0_Z1A_	3B	0.2	0061_00:11.0_1A_1.3_0046_00:09.7_S1-GA-L02_3	
00:12.0_Z1A_	3C	0.3	0073_00:12.0_1A_0.5_0058_00:11.5_S1-GA-L03_4	
00:13.0_Z1A_	3D	0.4	0074_00:13.0_1A_1.4_0354_00:11.6_S1-GA-L04_5	
00:14.0_Z1A_	4A	0.5	0078_00:14.0_1A_2.0_0895_00:12.0_S1-GA-L05_6	
00:15.0_Z1B_	4B	0.6	0093_00:15.0_1B_0.3_0053_00:14.7_S1-GB-L01_7	
00:16.0_Z1B_	4C	0.7	0095_00:16.0_1B_1.1_0256_00:14.9_S1-GB-L02_8	
00:17.0_Z2A_	4D	0.8	0097_00:17.0_2A_1.9_0362_00:15.1_S2-GA-L01_9	
00:18.0_Z2A_	5A	0.9	00A1_00:18.0_2A_1.9_0362_00:16.1_S2-GA-L02_10	
00:19.0_Z2A_	5B	1.0	00AB_00:19.0_2A_1.9_0789_00:17.1_S2-GA-L03_11	
00:20.0_Z3A_	5C	1.1	00C1_00:20.0_3A_0.7_0332_00:19.3_S3-GA-L02_12	
00:21.0_Z3A_	5D	1.2	00CB_00:21.0_3A_0.7_0059_00:20.3_S3-GA-L03_13	
00:22.0_Z3A_	6A	1.3	00D9_00:22.0_3A_0.3_0654_00:21.7_S3-GA-L04_14	
00:23.0_Z3A_	6B	1.4	00E3_00:23.0_3A_0.3_0888_00:22.7_S3-GA-L05_15	
00:24.0_	6C	1.5		
00:25.0_	6D	1.6		
00:26.0_	7A	1.7		
00:27.0_	7B	1.8		
00:28.0_	7C	1.9		
00:29.0_	7D	2.0		
00:30.0_	8A	2.1		
00:31.0_	8B	2.2		
	8C	2.3		
	8D	2.4		

Time Code Filtré — Zones — Retard — Liste détaillée

Sauvegarde intermédiaire — Ouvrir une sauvegarde intermédiaire — Restitution

Traduction Photo 9

Extraction des Times Codes = Time Codes Extraction
Copier selection TC = Copy TC selection
Mn = M Sec = S Diz = D
Créer un Time Code = Create a Time Code
Ouvrir un fichier de tir = Open a firing file
Programmer = Program
Quitter = Quit
Lier 1 TC et 1 Zone = Link 1 TC and 1 Zone
Suppression 1 ligne Time Code Filtré = Delete 1 Filtered Time Code line
Supprimer 1 Zone de la Liste détaillée = Delete 1 Zone from the Detailed List
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Time Code Filtré = Filtered Time Code
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Retard = Delay
Liste détaillée = Detailed List
Sauvegarde intermédiaire = Intermediary Save
Ouvrir une sauvegarde intermédiaire = Open intermediary save
Restitution = Return

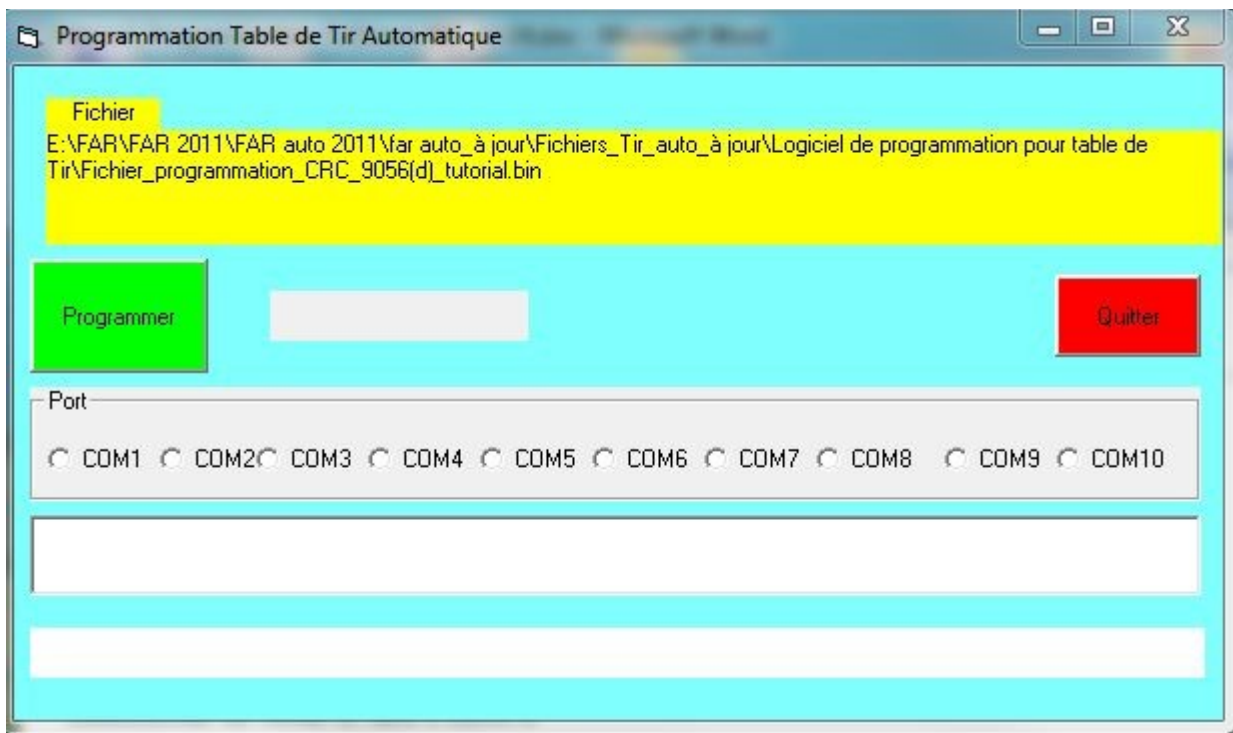
Figure 2

In case you wish to change this configuration, it is still possible to use the “Return” button to delete the S-G-L from the detailed list and input new parameters in the modify mode.

Programming the automatic firing table

Open the software (TirAutoDirect_960TC_V1.05.exe) and click on the “Program” button.

A window opens where you can select the firing file previously saved on your hard drive.
Select the file and “Open”



Traduction Photo 10

Programmation Table de Tir Automatique = Programming Automatic Firing Table

Fichier = File

Programmer = Program

Quitter = Exit

Port = Port

Recent PCs do not have the RS232 physical ports anymore. This can be emulated with a USB/RS232 adaptor.



Plug in the COM RS232 cord in the RS232 outlet of the automatic firing table.
Place the rotary switch on the right to “Prog” and the one on the left on RS232.

The display shows:

PROG CRC :

Page :00000

Click on the green “Program” button.

The software searches automatically for the COM PORT able to connect to the firing table and then programs it in 64 bytes pages.

After the programming, the display shows:

PROG CRC : 09056

Page :00002



Traduction Photo 11

Fichier = File

Programmer = Program

128 octets, 2 bloc(s) = 128 bytes, 2 block(s)

Quitter = Exit

Port = Port

Bloc 2 OK =Block 2 OK

The calculated CRC is indeed the same as the one in the file, the programming is OK.

Attention:

The encoding in the firing table's memory is done in 64 bytes blocks (or pages). In this case, the file is small, there is only one bloc.

In case of programming error, Block x NOK is displayed. In this case, close the software and restart the operation from the beginning.

Click on "Exit" to come back to the home page.

The "Return" button is active; it allows you to come back to the TCo allocation to a Zone phase if necessary.

4. **Open a firing file**

Use the "Open a firing file" button.

The window contains the same elements as in figure 2 to see all the input parameters.

Clicking on the "Return" button deletes the S-G-L parameters and the window will contain the elements in figure 1.

It is then possible to make changes and create new firing files (.bin and .txt).

5. Detailed firing file

One of the 2 files that were previously created is the detailed firing file.

You can open it with any text editing software (.txt extension).

It has to be printed and it contains the Zone lists and the detailed List.

It is very useful to list the fireworks and their installation in the field.

6. Wiring topologies

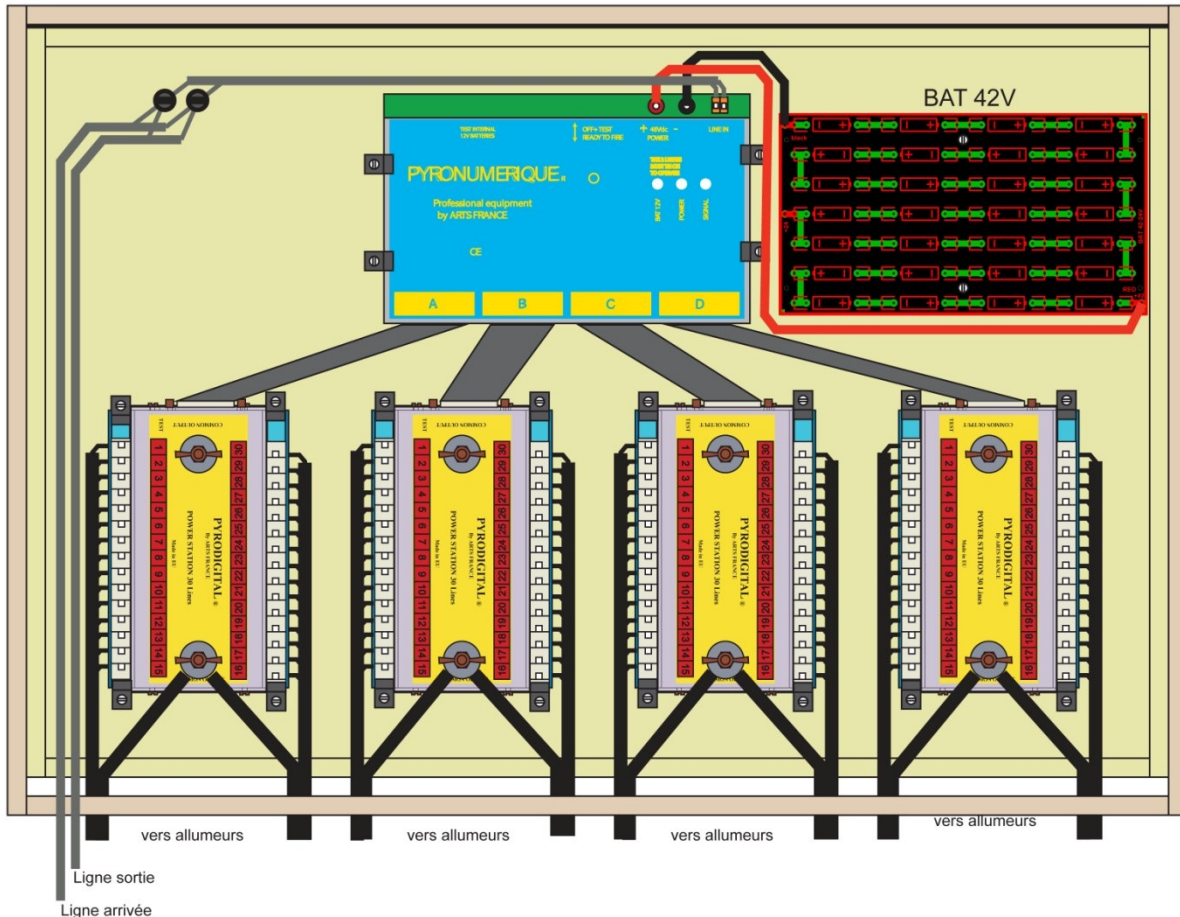
The case containing the firing table is able to command 8 systems with 8 separate cords.



A system is able to command 120 points which correspond to 4 blocks of 30 relay outputs. These relay units are called Zones because they can be distanced from one another. The choice of the Zones is the first decision to take when creating a firing file.

If the number of firing points is highly dense, 4 Zones can be grouped together to be able to use the decoding capacities of a receiver in the best possible manner and to use only one 42V battery (or a 24V, which is sufficient in most cases).

If the fireworks are scattered out over a large distance, several receivers have to be plugged in on the same system cord, using 1, 2 or 3 30 points relay units. This type of partitioning allows long cord igniters to be plugged in without using an extension cord directly on the relay units.



Traduction Photo 12

Vers allumeurs = To igniters

Ligne sortie = Line-out

Ligne arrivée = Line-in

This is an example of a decoding unit with 120 firing points, which has a receiver, a power supply and 4 30 point relay units.

The Line-in is plugged in to one of the 8 outputs (systems) of the firing case. The Line-out allows an optional extension to other decoding units (up to 9 additional ones).

The outputs with the same number (1 to 30) and which are plugged in on the same group (A to D) of the same output will be controlled simultaneously.

Topology example of grouped and partitioned Zones:

System1 :	Zones 1A,1B,1C,1D with 1 receiver 120 grouped outputs		
System2 :	Zone 2A with 1 receiver 30 points	Zones 2B,1C with 1 receiver 60 points	Zone 2D with 1 receiver 30 points
System 3 :	Zone 3A with1 receiver 30 points	Zones 3B with 1 receiver 30 points	Zone 3C with 1 receiver 30 points
System 4 :	Zones 4A,4B,4C,4D with 1 receiver 120 grouped outputs		
System 5 :	Zone5A with 1 receiver 30 points	Zone1A with 1 receiver (simultaneous shot with the other Z1A) 30 points	

In case of simultaneous shots:

If 2 shots are to be shot at the same time, there are 2 ways to do it:

- Create a shot on the second Zone with a 0.1s delay. It is the most efficient solution in terms of equipment.
- Create another Zone with the same code. This solution will create a true simultaneous shot (on condition that the delays are the same for the 2 fireworks), but it uses more equipment.

7. Using the “Sound Forge” software

The information given below does not stand in for the “Sound Forge Audio Studio 9” instruction manual (hereafter called SF), which is a highly complete sound editing software.

In the creation of a fireworks show in sync with music, only a small part of the software’s functions are used, such as:

- Assigning a “show” sound file to track 1
- Assigning a sound file to the Time Codes on track 2
- Assigning the pointers for the Time Codes (TCorigin) on the “show” soundtrack for each shot
- Extracting the TCorigin table, copying its contents to use it with the firing case’s programming software.

In the following paragraphs, we will use the file « Son_tutorial_mono.wav et TC_54mn1s.wav »

The first track is a 1m30s music piece in mono, which will serve as a mere example and is devoid of any artistic aspirations.

The second one is the 54 m sound of the Time Code in stereo.

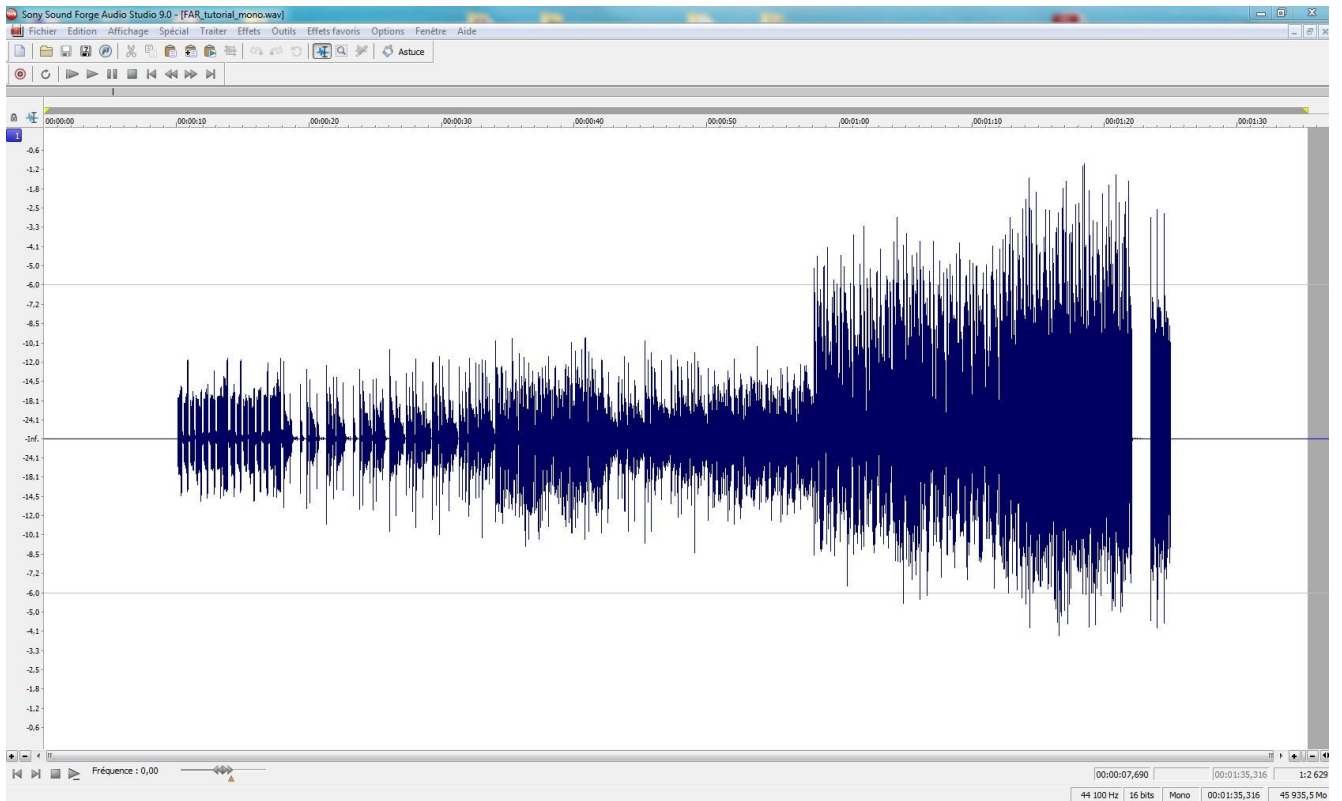
These 2 files have to have a 44100Khz sampling of 16 bits and have to be in a .wav format.

8. Preparing the sound for the show

Open the file and place one 10 second rests at the beginning and at the end.

The first one corresponds to the time that is necessary to take into account the delay of the first shots.


Menu / Edit/ Insert a rest/ at the beginning and then at the end.

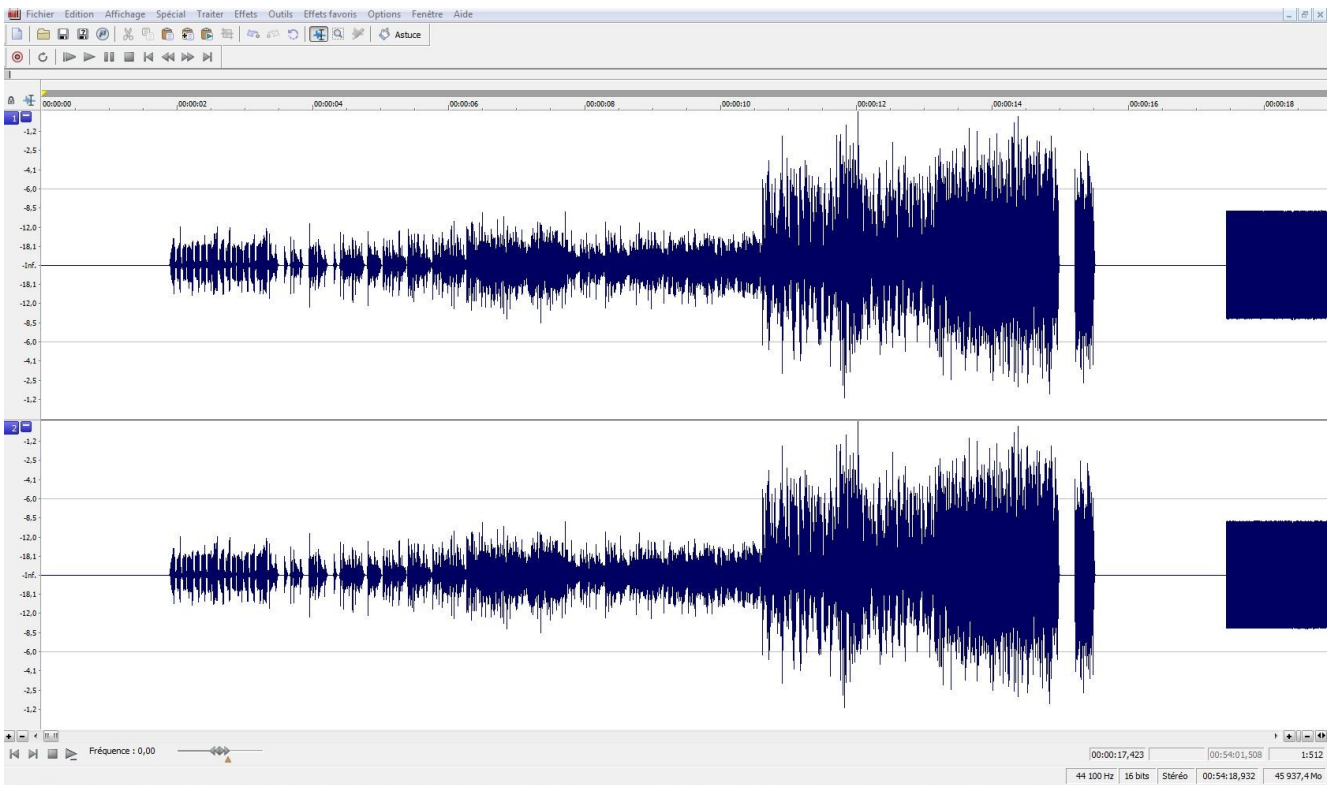


Save the file under the following name `Son_tutorial1010_mono.wav`.
Select the entire sound wave that is open in the SF window.
`Ctrl+num5` and then `Ctrl+C`.

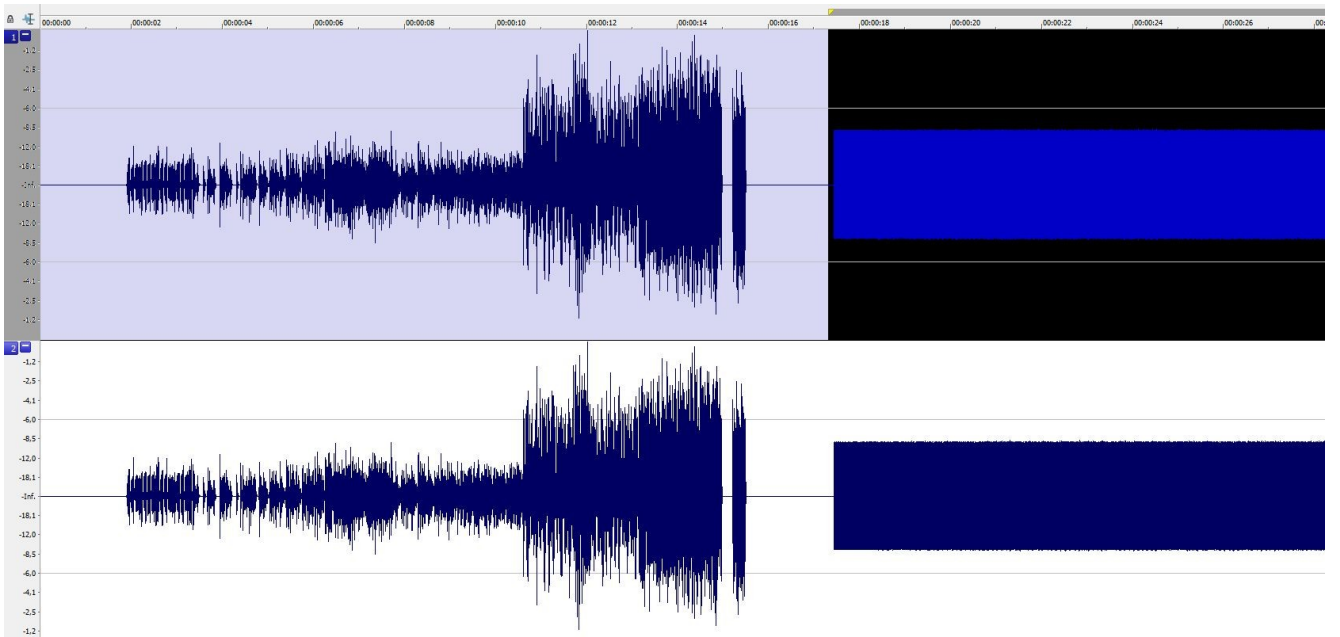
9. **Assigning the Time Codes sound**

Open this file and paste the show sound file at its beginning.

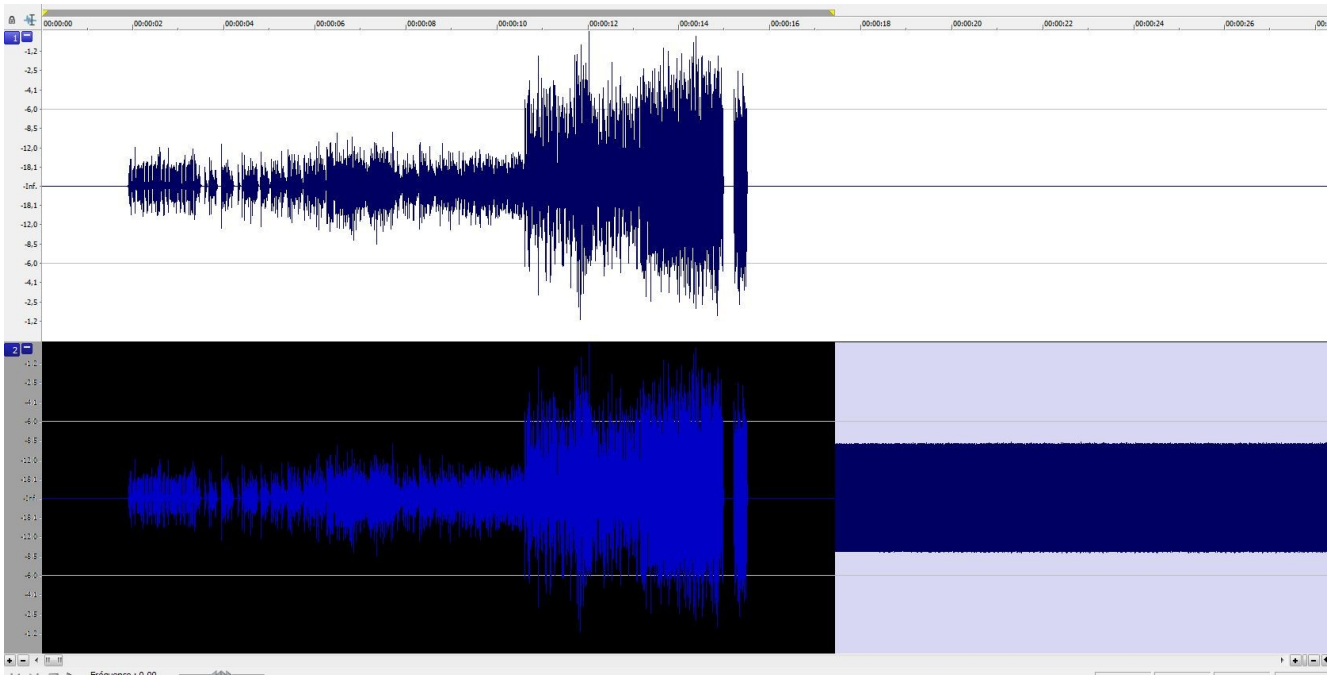
Cursor at the beginning of the sounds   (left) and then `Ctrl+V`.



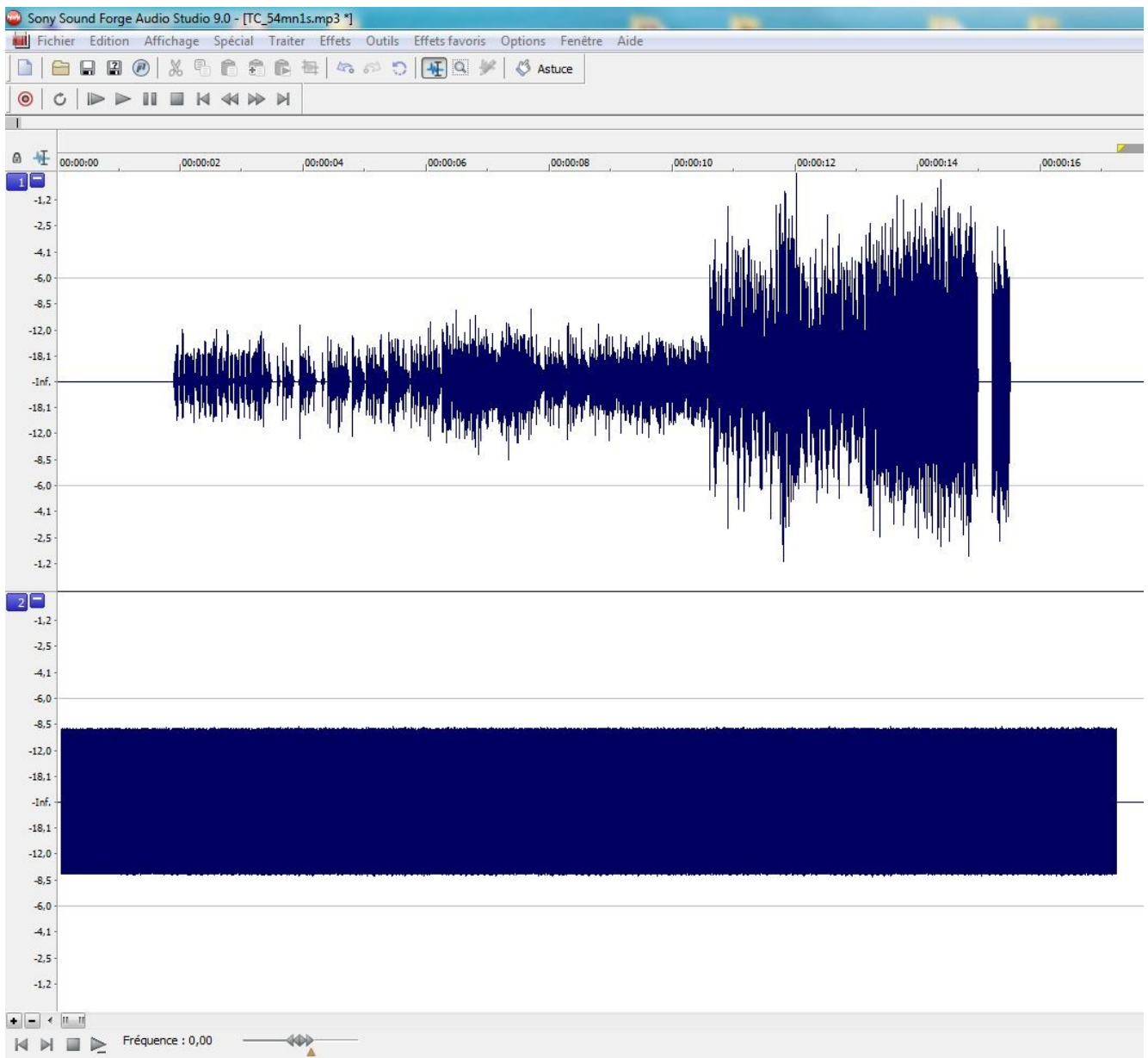
Delete the Time Code on track 1
 Select this Time Code and press Delete.



Delete the show soundtrack on track2
 Select this sound and press Delete.



Delete the remaining Time Code at about 5 seconds after the end of the show soundtrack.



You now have the soundtrack of the show on track 1 starting 10 seconds after the Time Code starts.

The Time Code 00:00.0 starts 1 second after the beginning of the sound so that the signal might be stable (it is visible by increasing the scale of the first second).

Save this file under the following name « Tir_tutorial_TC-Son.wav »

10. Assigning the Time Codes pointers

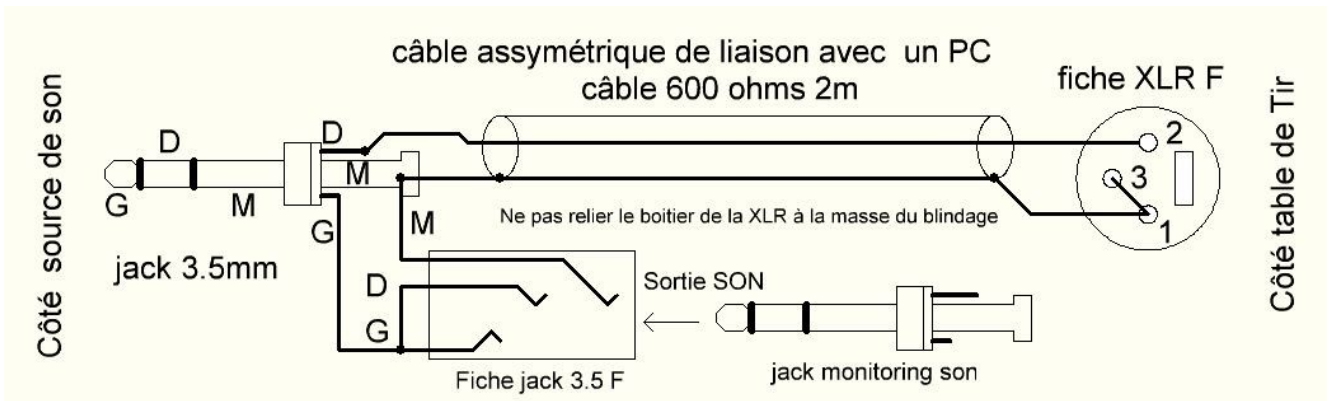
Open « Tir_tutorial_TC-Son.wav » if it is not already open.

Plug in the special cord on the PC output.

Input: jack stereo 3.5mm male

Output: jack stereo 3.5 mm female for sound monitoring and an XLR outlet for the firing table modem.

The sound on track 1 is to be heard on the left track.



Traduction Photo 13

Côté source de son = Sound source side

Câble assymétrique de liaison avec un PC = Assymetric cord for PC connection

Câble 600 ohms 2m = 2m 600ohms Cord

Jack 3.5mm = Jack 3.5 mm

Fiche jack 3.5 f = Plug jack 3.5mm

Ne pas relier le boîtier de la XLR à la masse du blindage = Do not connect the XLR unit to the ground of the reinforcement

Jack monitoring son = Jack sound monitoring

Sortie son = Sound output

Fiche XLR = Plug XLR

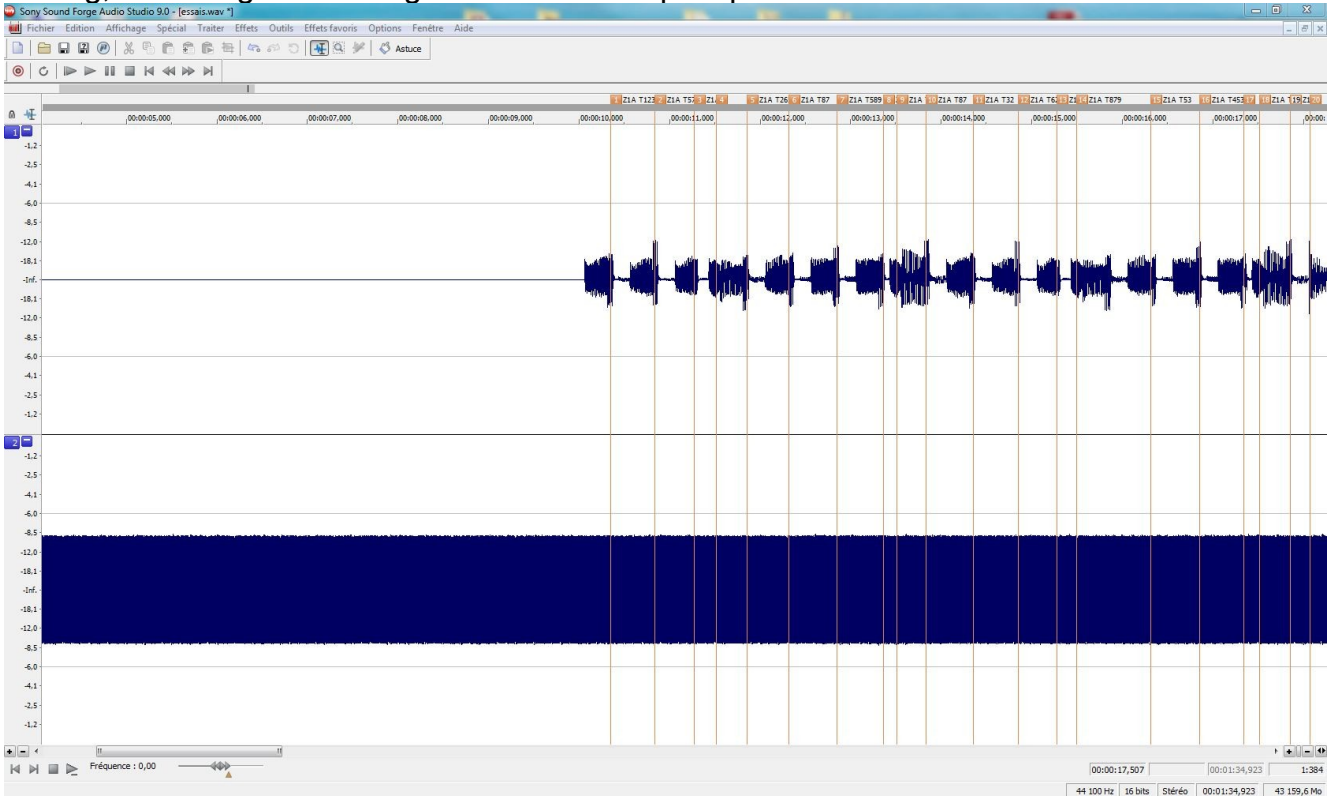
Côté table de tir = Firing table side

Place the cursor at the beginning of track 1 of the show soundtrack and increase the time scale to see the detail of the rhythm types.

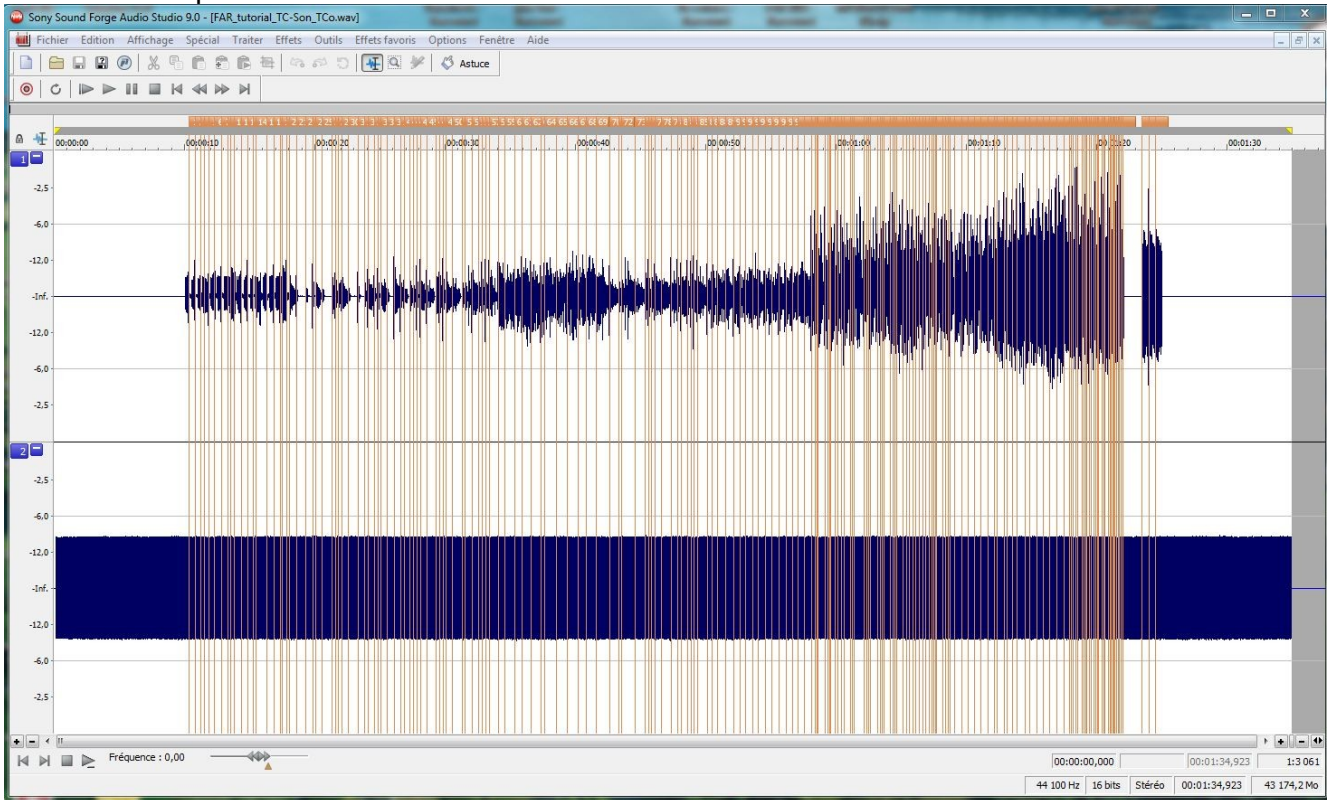
Place the markers by pressing "M" in the desired places in order to fire a shot.

Name each pointer by including at least the Zone and the type of firework (e.g. Z1A T256).

Editing, canceling and adding markers are simple operations.



Do the same operation for the entire track 1.



11. Extracting the TCorigin table

Menu: View/ Region List

Right click on this list and select "Copy to notepad".

Liste de régions				
	Nom	Début	Fin	Longueur
1	Z1A T123	00:00:10,344		
2	Z1A T57	00:00:10,832		
3	Z1A T89	00:00:11,267		
4	Z1A T532	00:00:11,511		
5	Z1A T265	00:00:11,853		
6	Z1A T87	00:00:12,312		
7	Z1A T589	00:00:12,840		
8	Z1A T456	00:00:13,357		
9	Z1A T652	00:00:13,508		
10	Z1A T87	00:00:13,827		
11	Z1A T32	00:00:14,349		
12	Z1A T624	00:00:14,843		
13	Z1A T87	00:00:15,272		
14	Z1A T879	00:00:15,493		
15	Z1A T53	00:00:16,312		
16	Z1A T453	00:00:16,851		
17	Z1A T875	00:00:17,339		
18	Z1A T845	00:00:17,507		
19	Z1A T56	00:00:17,850		

Traduction Photo 14

Liste de régions = Region List

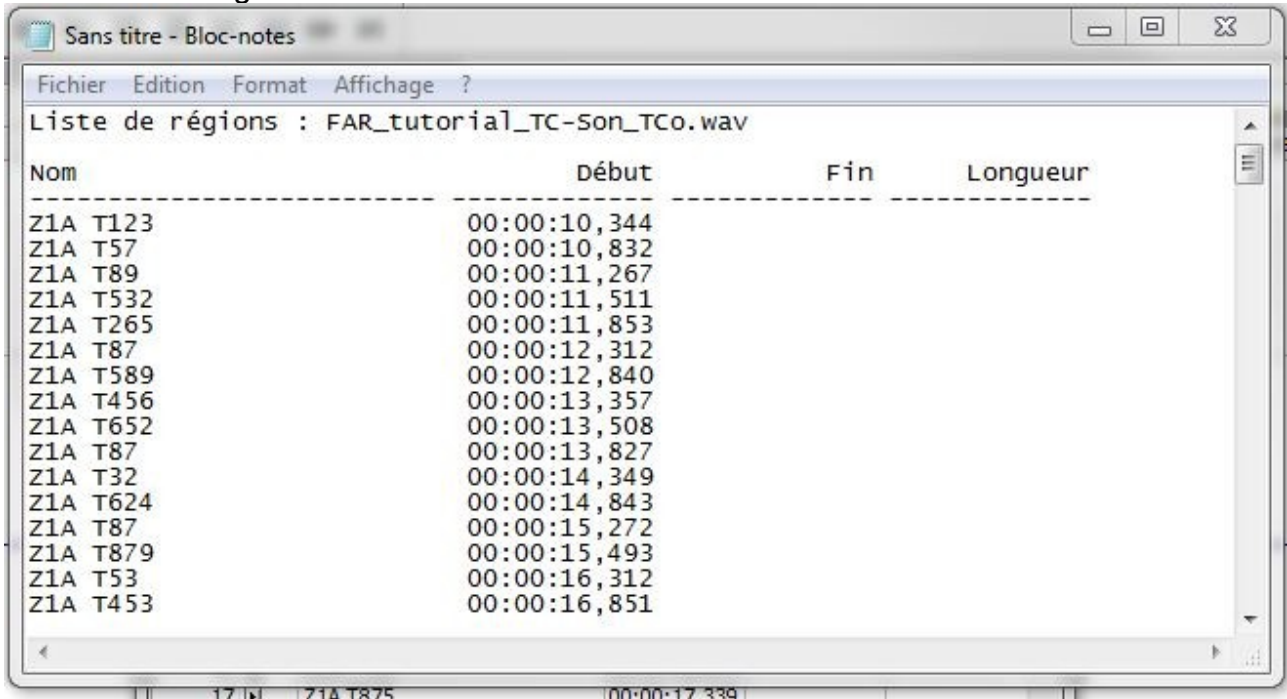
Nom= Name

Début= Start

Fin= End
Longueur = Length

By pasting the list into a text editing software (e.g. Notepad in Windows), you will be able to check if the result is what we need for the programming software to start (“Extract Time Codes” button).

The order of the markers does not matter, the programming software will put them in the correct chronological order.



The screenshot shows a Notepad window titled "Sans titre - Bloc-notes" with a menu bar containing "Fichier", "Edition", "Format", "Affichage", and "?". The main text area contains the following table:

Nom	Début	Fin	Longueur
Z1A T123	00:00:10,344		
Z1A T57	00:00:10,832		
Z1A T89	00:00:11,267		
Z1A T532	00:00:11,511		
Z1A T265	00:00:11,853		
Z1A T87	00:00:12,312		
Z1A T589	00:00:12,840		
Z1A T456	00:00:13,357		
Z1A T652	00:00:13,508		
Z1A T87	00:00:13,827		
Z1A T32	00:00:14,349		
Z1A T624	00:00:14,843		
Z1A T87	00:00:15,272		
Z1A T879	00:00:15,493		
Z1A T53	00:00:16,312		
Z1A T453	00:00:16,851		

Print out this document as it will help you assign the Zones and firework Types to each TCo.