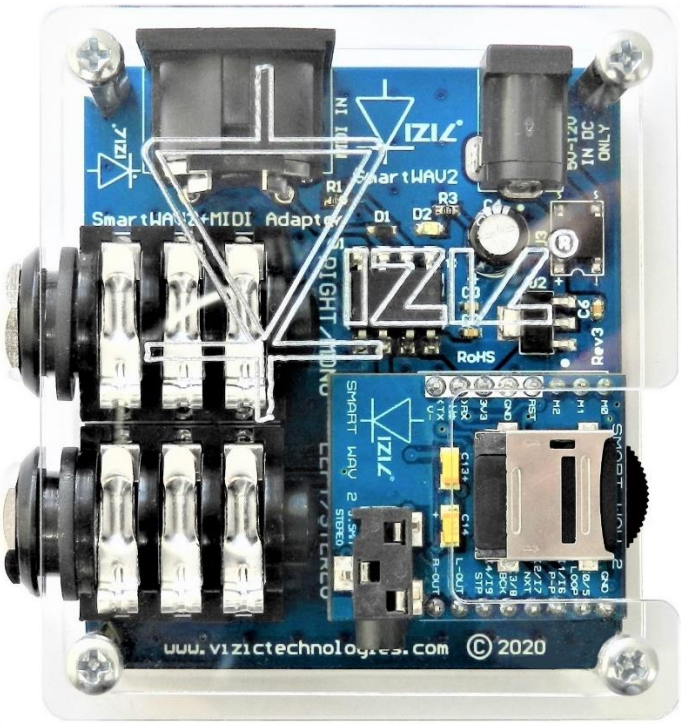
VIZIC TECHNOLOGIES

SMARTWAV 2 + MIDI ADAPTER UPGRAGE DRUM MODULE SOUNDS

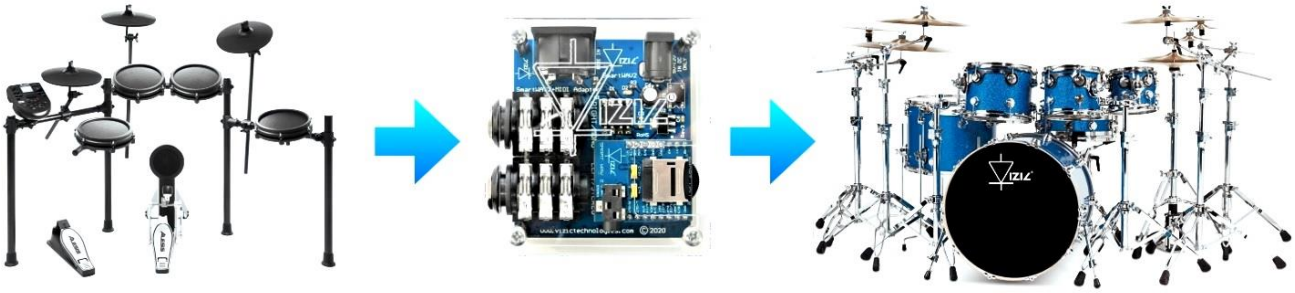
Quick Guide -- Rev 2.0

SmartWAV 2 + MIDI Adapter

Professional MIDI Audio System



Drum Module -> SmartWAV2+MIDI Adapter -> High-End Drums



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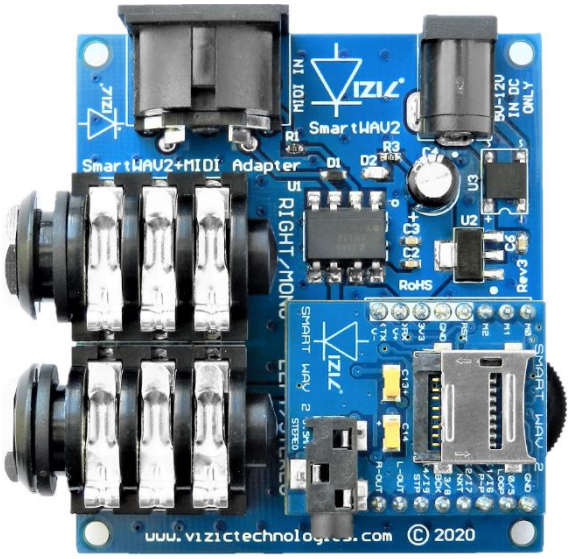
1.1- Introduction:



The SmartWAV 2 is an Intellectual Property smart high-end audio processor, when mounted on the MIDI Adapter board, it is called the SmartWAV2 + MIDI Adapter and the processor always operates in "MIDI Mode".

The system is therefore a professional MIDI receiver, with high-quality audio track/sample triggering via MIDI commands.

The processor supports **8/16bit**, **8Khz-48Khz, mono/stereo, ".WAV"** files.

The main goal of the SmartWAV 2 + MIDI Adapter it's to bring the easiest way to evaluate the MIDI mode of the bare SmartWAV 2 processor board and provide simple inputs and outputs as any other commercial musical product, this way any user without the experience in wiring electronics can operate the system.

This document covers a simple tutorial on how to upgrade the sounds of an Alesis® Nitro and a Roland® TD-25 drum sound modules, however the same procedure applies for any drum module with a 5-pin DIN MIDI Out. For more detailed information about MIDI operation please refer to **SmartWAV2-MIDI.pdf** document.

For detailed hardware specifications of the SmartWAV 2 + MIDI Adapter refer to the SmartWAV2+MIDI Adapter_Datasheet.pdf.

2- Hardware Requirements

The required hardware to operate the SmartWAV2 + MIDI Adapter is the next:

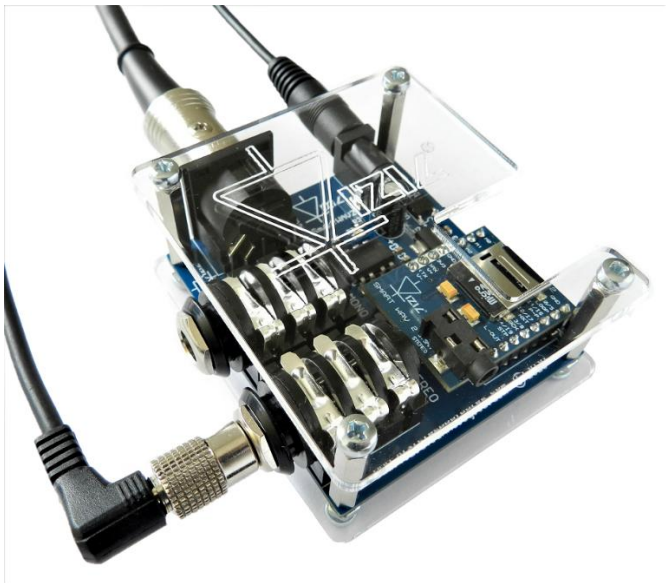
1.- AC/DC power supply 5V-12V DC out with any polarity. (D'Addario PW-CT-9V or a Boss PSA are recommended). It is advised to use a noise-filtered AC/DC adapter like the recommended ones.

2.- Standard universal 5-Pin DIN MIDI cable.

3a.- For connection of SmartWAV 2 + MIDI Adapter to a PA mixer, audio interface or powered speaker with 1/4" TS or TRS line-in inputs; use single TS 1/4" plug cable for mono, Single TRS 1/4" plug cable for single stereo or dual TS 1/4" plug cables for dual stereo sound.

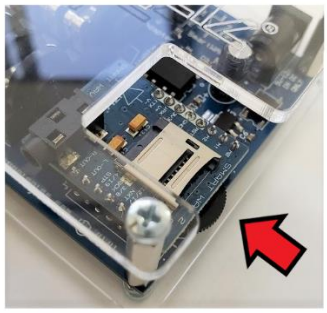
3b.- For connection of SmartWAV 2 + MIDI Adapter to the drum sound module auxiliary input, use a stereo 1/4" to 3.5mm adapter, and a 3.5mm plug cable.

4.- MicroSD card, SD or SDHC type, formatted with FAT32, a 32GB or less capacity is recommended. (Refer to section 6 Format uSD card).

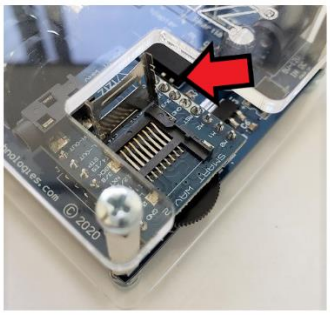


2.1- Inserting the MicroSD Card

The SmartWAV2+MIDI Adapter contains a special locking microSD card socket, this ensures the card stays in place and avoids accidental falling, placing and lock of this socket can be tricky, please follow the next instructions:

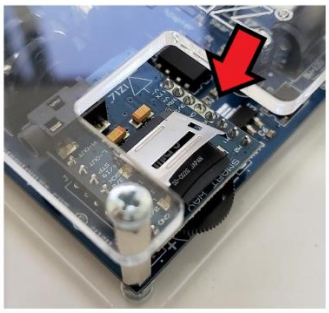


Using the index finger, push forward the metal hinge of the microSD card socket.

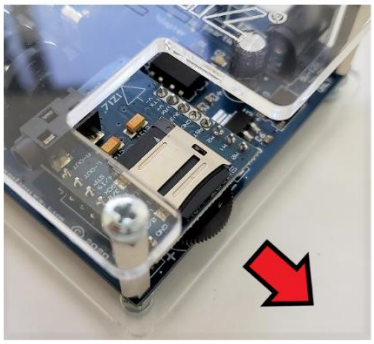


The metal hinge of the microSD card socket can now be lifted up.

Place the microSD card taking care that the small little plastic peak fits into the microSD card groove.



Close back the microSD card socket hinge taking care that it does not interfere with the card.



Finally pull back and secure the microSD card hinge to the socket base.

3- Software Requirements

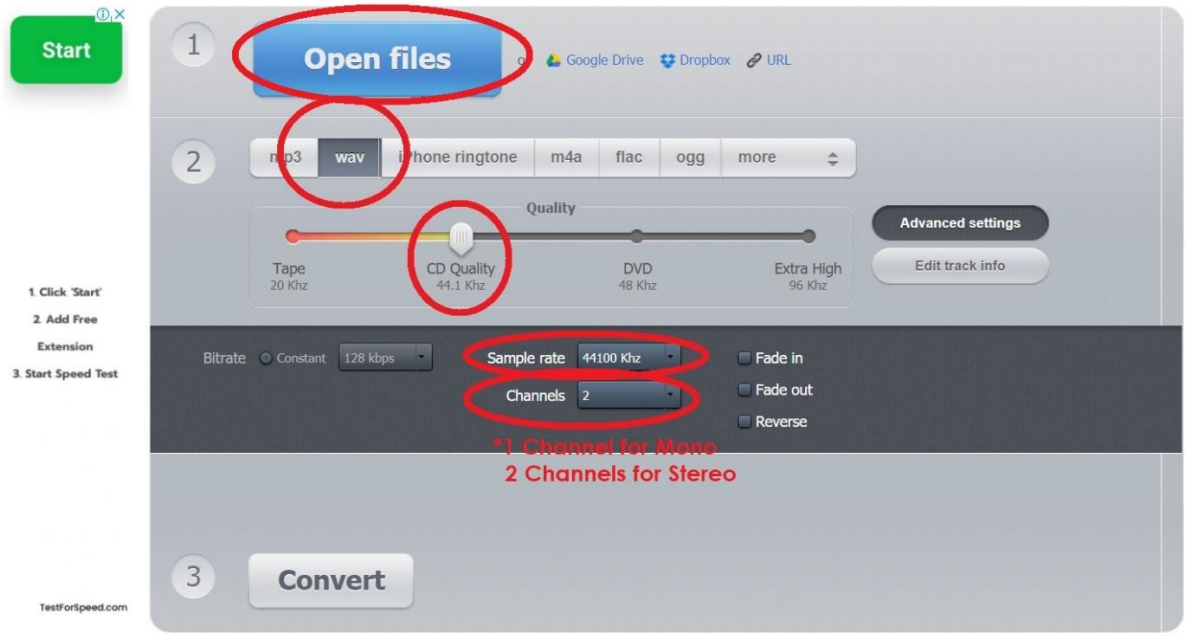
The SmartWAV2+MIDI Adapter is a MIDI controlled device that triggers audio samples/tracks, those samples are read from the inserted microSD card, the audio samples to be triggered must follow the next audio format:

-Uncompressed WAVE(.WAV or .wav) format.
-Mono(1) or Stereo(2) channels.
-8/16 bits per sample.
-8khz to 44.1khz sample rate.

Any windows/MAC computer can upload .wav files to the microSD card, no special software or drivers are required for this operation.

There are many software that can convert audio files into .wav files, a free online software is the next: https://online-audio-converter.com/

If use of the online-audio-convert, please mark as follows:



3.1- MicroSD Card .wav Files Management

SmartWAV2 triggers audio tracks based on the received NoteON / NoteOFF MIDI commands, using the parameter **Note Number**. The ".wav" files must exist and be stored/named as note numbers in the next manner:

-MIDI Note 0 -must be stored/named as "000.wav".
-MIDI Note 64 -must be stored/named as "064.wav".
-MIDI Note 127 -must be stored/named as "127.wav".

Please check that the note number/track name is 3 characters long (filled with zeros) plus the ".wav" extension.

**For more detailed information please refer to the document SmartWAV2_MIDIMode.pdf, section 6.1.*

SmartWAV2 can support 4 velocity layers, but this functionality must be enabled (section 3.3), so the system can trigger note names with a suffix 'a', 'b', 'c' or 'd' depending on the received velocity parameter, the next table illustrates how the ".wav" files inside the microSD card must be named if multi-layer velocity defendant is enabled:

Note #	Name if Layer Velocity Disabled(default)	Names if Layer Velocity is Enabled, each note has 4 ".wav" files.
0	"000.wav"	"000a.wav", "000b.wav", "000c.wav", "000d.wav"
64	"064.wav"	"064a.wav", "064b.wav", "064c.wav", "064d.wav"
127	"127.wav"	"127a.wav", "127b.wav", "127c.wav", "127d.wav"

This functionality is useful for percussion sounds, as for example a cymbal does not sound equal being hit at slow(a), medium low(b), medium high(c) or fast(d) speed, user can store different sounding ".wav" files for those 4 velocity layers. *By default layer velocity is disabled.

**For more detailed information please refer to the document SmartWAV2_MIDIMode.pdf, section 7- Layer Velocity.*

3.2- MicroSD Card Folders Management

SmartWAV2 can change its internal folders (Therefore its internal .wav note numbered .wav files to be triggered) based on the received PC program change commands, using the parameter **Program / Patch Number**. The folder must exist and be stored / named as 000 to 127 numbers in the next manner:

-Program/Patch/Kit Number 0 refers to a folder named "000".
-Program/Patch/Kit Number 64 refers to a folder named "064".
-Program/Patch/Kit Number 127 refers to a folder named "127".

Please check that the folder name is 3 chars long (filled with zeros).

**For more detailed information please refer to the document SmartWAV2_MIDIMode.pdf, section 6.2.*

Not all the drum modules work the same or support/send the same MIDI commands; all drum modules do support NoteOn/NoteOff commands used to trigger .wav files, but only some modules support PC program-change commands used to change folders, those PC commands are generated when the user changes the drum kit/bank number of the drum module.

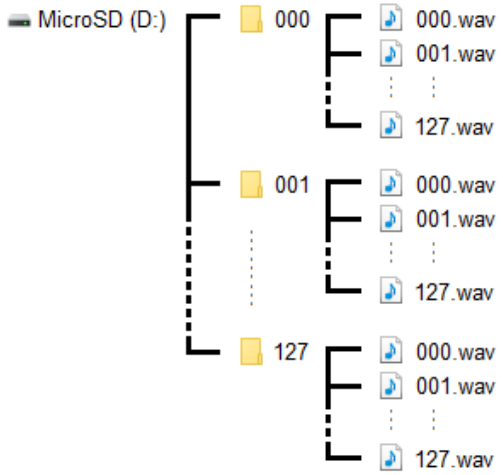
-For modules that **NOT support** PC program-change commands (ex. Alesis® Nitro module), is recommended to place all the .wav audio files directly in the microSD card root path:

Recommended MicroSD Card .wav Files Location

Based on the above, as no PC command will be received, the SmartWAV2+MIDI Adapter will always point to the microSD card root path, triggering the received NoteON commands with the available note numbered xxx.wav files.

-For modules that **Support** PC program-change commands (ex. Roland TD-25® module), is recommended to place all the note numbered .wav audio files inside folders that are placed in the microSD card root path:

Recommended MicroSD Card Folders and .wav Files Location



The Image shows folders from 000 to 127 that are placed in the microSD root path, those folders denote **Program Change** possible values or drum kits numbers, drum modules that support and send PC program change will cause SmartWAV2 to enter inside those numbered folders, SmartWAV2 will further trigger NoteON command audio tracks that are inside the newly entered folder.

Based on the above, when a drum kit of the module is selected via its module knobs, a PC command will be generated and the internal folder number of the microSD card will change according to the PC command, so all the future received NoteON commands will trigger only the note numbered xxx.wav samples that are stored inside the new folder.

It is not strictly necessary that the microSD card contains all the 000 to 127 folders, neither all the 000 to 127 ".wav" notes inside each folder, the microSD card can be loaded with only the folders and ".wav" notes that will be required by the audio application.

**For more detailed information please refer to the document SmartWAV2_MIDIMode.pdf, section 8.*

3.3- The MIDIConfig.txt File

At system boot/start SmartWAV2 always look for a file called "MIDIConfig.txt" placed in the microSD card root path, this file is used to provide SmartWAV2 with some pre-configurations and parameters during system boot, there are several configurations but the most used and needed are the next:

-Note OFF Disable
-Layer Velocity
-Hi-Hat Close Note
-Hi-Hat Open Note

The above parameters are explained next in the Getting Ready sections.

**For more detailed information please refer to the document SmartWAV2_MIDIMode.pdf, section 7.*

4- Getting Ready - Alesis® Nitro

4.1- Hardware Connections

While all hardware is powered OFF:

-Push and rise the hinge of the microSD card socket, place and fit the microSD card, close the hinge, then pull to lock and secure the microSD card from falling.

-Connect one side of the 5-pin MIDI cable to the MIDI OUT jack of the drum module, then connect the other side to the MIDI IN of the SmartWAV2 + MIDI Adapter board.

-Connect one side of a 3.5mm stereo cable to the aux input of the drum module, insert the other side to the 3.5mm to 1/4" adapter and then plug the adapter end to the TRS STEREO 1/4" labeled input of SmartWAV2 + MIDI Adapter board.

-Roll the volume potentiometer of SmartWAV2 + MIDI Adapter to the lowest position.

-Plug the DC adapter power supply to the SmartWAV2 + MIDI Adapter DC Jack input, the blue LED must power on.

-Turn On the Nitro module and slowly adjust volumes.

4.2- MicroSD Card .wav Files

The inserted microSD card must be loaded with .wav samples according to the previous document section 3, the samples must sound as high-volume possible but not clip, this will give a good noise to sound ratio performance. For the Nitro module: .wav files must be loaded in the microSD root path as the Nitro module does not support / send Program Change commands.

The Nitro module by default is configured to send MIDI NoteON / NoteOFF, note number parameters based on the next table:

Pad MIDI Note Numbers

Trigger	MIDI Note Number
Kick	36
Snare	38
Snare Rim	40
Tom 1	48
Tom 1 Rim	50
Tom 2	45
Tom 2 Rim	47
Tom 3	43
Tom 3 Rim	58
Tom 4	41
Tom 4 Rim	39

Trigger	MIDI Note Number
Ride	51
Crash 1	49
Crash 2	57
Hi-Hat Open	46
Hi-Hat Half-Open	23
Hi-Hat Closed	42
Hi-Hat Pedal	44
Splash	21

**For more detailed information please refer to the Nitro user's manual: Appendix section on page 38.*

The previous MIDI note numbers table shows that if the Nitro snare drum pad is hit, the module will send a MIDI NoteON command with **note parameter** of **38**, therefore, if it is required for SmartWAV2 to trigger a drum sample when the snare is hit, the .wav audio file inside the microSD card must be named:

Note #	If Layer Velocity Disabled(default)	If Layer Velocity Enabled, each note has 4 ".wav" files.
34	"034.wav"	"034a.wav", "034b.wav", "034c.wav", "034d.wav"

**For more detailed information please refer to the document SmartWAV2_MIDIMode.pdf, section 6.1 and 7- Layer Velocity.*

4.3- MicroSD Card "MIDIConfig.txt" File Configuration

Creation of the "MIDIConfig.txt" file, for this tutorial only the next parameters must be contained in the txt file:

-Note OFF Disable: If the file contains the word **NOTEOFFDISABLE**, SmartWAV2 will disable/ignore all Note OFF commands during system run, this functionality is great for percussion sounds, where there is no need to receive or must ignore Note OFF commands that can cut / stop the sound.

-Layer Velocity: If the file contains the word **LAYERVEL**, SmartWAV2 will **enable** the velocity layering functionality of the system, this means that during system execution, received notes will trigger tracks based not only on the note number, but also on the **velocity** parameter.

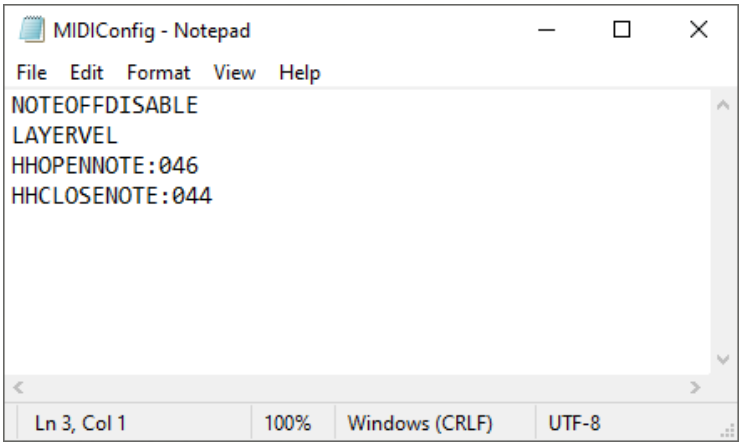
Apart from many MIDI trigger systems that doesn't support it, SmartWAV 2 processor supports configurations so a real Hi-Hat pedal action (stopping the sound of an open hi-hat ringing sound when the hi-hat pedal is stomped/closed), this can be simulated by providing two note numbers, the **HHCLOSENOTE** and the **HHOPENNOTE**, the next paragraphs will describe those keywords:

-Hi-Hat Close Note: If the file contains the word **HHCLOSENOTE**: followed by a number between **0-127**, SmartWAV2 will take this note and save it during system execution.

-Hi-Hat Open Note: If the file contains the word **HHOPENNOTE:** followed by a number between **0-127**, SmartWAV2 will take this note and if during system execution, a "Note On" command with note number same as the saved **HHCLOSENOTE** is received, the system will automatically stop playing the track number **HHOPENNOTE** (open hi-hat note sound), this will simulate a hi-hat close pedal action. This functionality is intended for drum modules / percussion applications.

Based on the default Pad MIDI Note Numbers of Nitro module, the **Hi-Hat Open** note number is the **46**, and the **Hi-Hat Pedal** is the **44,** so the MIDIConfig.txt file will be created as follows:

Contents of the Suggested "MIDIConfig.txt" File



**For more detailed information please refer to the document SmartWAV2_MIDIMode.pdf, section 7.*

4.4- Nitro Drum Module Configuration

SmartWAV2 + MIDI Adapter can be used in two ways:

1.-To completely replace all the Nitro drum module sounds of a kit.

To deactivate/mute/bypass the sounds of the Nitro module: press **Utility** button, then press **Page/Select**, go to **LOC**(Local Mode), and set it to **OFF**.

**For more detailed information please refer to the Nitro user's manual: MIDI Settings section on page 9.*

2.-To replace only a drum pad sound, or to mix/layer Nitro drum module sounds plus SmartWAV2 sounds, as an example: Nitro module snare sound + SmartWAV2 tambourine sound, both triggered each time the snare drum pad is hit.

Hit the pad to configure, press **Voice**, then press **Page/Select**, go to **MID**(MIDI note) and adjust this number to match the note number of the microSD card audio .wav file to be triggered.

Secondly, press **Page/Select**, go to **VOL**(Pad Volume) and adjust the volume of the Nitro drum sound, if the volume is set to zero, then all the sound will be replaced by the SmartWAV2, but if this volume parameter is set to a medium level, then it will be mixed/layered with the SmartWAV2.

**For more detailed information please refer to the Nitro user's manual: Editing and Saving Drum Kits section on page 6.*

5- Getting Ready - Roland® TD-25

5.1- Hardware Connections

While all hardware is powered OFF:
-Push and rise the hinge of the microSD card socket, place and fit the microSD card, close the hinge, then pull to lock and secure the microSD card from falling.

-Connect one side of the 5-pin MIDI cable to the MIDI OUT jack of the drum module, then connect the other side to the MIDI IN of the SmartWAV2 + MIDI Adapter board.

-Connect one side of a 3.5mm stereo cable to the aux input of the drum module, insert the other side to the 3.5mm to 1/4" adapter and then plug the adapter end to the TRS STEREO 1/4" labeled input of SmartWAV2 + MIDI Adapter board.

-Roll the volume potentiometer of SmartWAV2 + MIDI Adapter to the lowest position.

-Plug the DC adapter power supply to the SmartWAV2 + MIDI Adapter DC Jack input, the blue LED must power on.

-Turn On the TD-25 module and slowly adjust volumes.

5.2- MicroSD Card .wav Files

The inserted microSD card must be loaded with .wav samples according to the previous document section 3. The TD-25 module support/send PC commands when a drum kit is selected, .wav files must be loaded inside 000 to 035 named folders, the TD-25 has 36 selectable kits (0 to 35). As an example if the first available kit is selected (Program change #000), then .wav samples of folder 000 will be triggered.

The TD-25 module by default is configured to send MIDI NoteON / NoteOFF, note number parameters based on the next table:

Pad MIDI Note Numbers

Trigger	MIDI Note Number
Kick	36
Snare	38
Snare Rim	40
Tom 1	48
Tom 1 Rim	50
Tom 2	45
Tom 2 Rim	47
Tom 3	43
Tom 3 Rim	58
Tom 4	41
Tom 4 Rim	39

Trigger	MIDI Note Number
Ride	51
Crash 1	49
Crash 2	57
Hi-Hat Open	46
Hi-Hat Half-Open	23
Hi-Hat Closed	42
Hi-Hat Pedal	44
Splash	21

**For more detailed information please refer to the Roland TD-25 user's manual.*

The previous MIDI note numbers table shows that if the TD-25 snare drum pad is hit, the module will send a MIDI NoteON command with **note parameter** of **38**, therefore, if it is required for SmartWAV2 to trigger a drum sample when the snare is hit, the .wav audio file inside the microSD card must be named:

Note #	If Layer Velocity Disabled(default)	If Layer Velocity Enabled, each note has 4 ".wav" files.
34	"034.wav"	"034a.wav", "034b.wav", "034c.wav", "034d.wav"

**For more detailed information please refer to the document SmartWAV2_MIDIMode.pdf, section 6.1 and 7- Layer Velocity.*

5.3- MicroSD Card "MIDIConfig.txt" File Configuration

Creation of the "MIDIConfig.txt" file, for this tutorial only the next parameters must be contained in the txt file:

-Note OFF Disable: If the file contains the word **NOTEOFFDISABLE**, SmartWAV2 will disable/ignore all Note OFF commands during system run, this functionality is great for percussion sounds, where there is no need to receive or must ignore Note OFF commands that can cut / stop the sound.

-Layer Velocity: If the file contains the word **LAYERVEL**, SmartWAV2 will **enable** the velocity layering functionality of the system, this means that during system execution, received notes will trigger tracks based not only on the note number, but also on the **velocity** parameter.

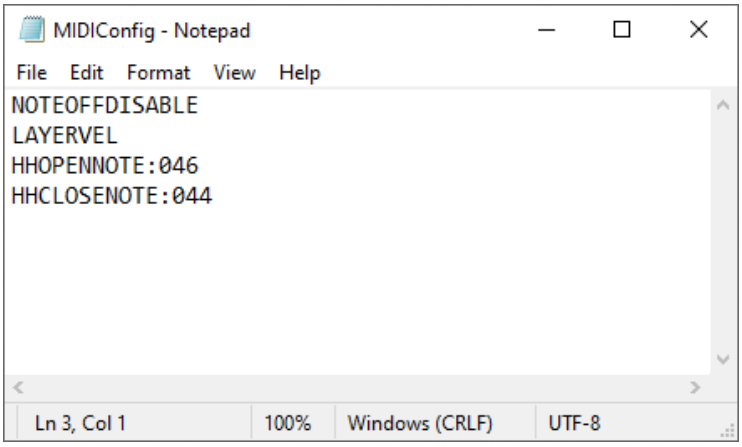
Apart from many MIDI trigger systems that doesn't support it, SmartWAV 2 processor supports configurations so a real Hi-Hat pedal action (stopping the sound of an open hi-hat ringing sound when the hi-hat pedal is stomped/closed), this can be simulated by providing two note numbers, the **HHCLOSENOTE** and the **HHOPENNOTE**, the next paragraphs will describe those keywords:

-Hi-Hat Close Note: If the file contains the word **HHCLOSENOTE**: followed by a number between **0-127**, SmartWAV2 will take this note and save it during system execution.

-Hi-Hat Open Note: If the file contains the word **HHOPENNOTE:** followed by a number between **0-127**, SmartWAV2 will take this note and if during system execution, a "Note On" command with note number same as the saved **HHCLOSENOTE** is received, the system will automatically stop playing the track number **HHOPENNOTE** (open hi-hat note sound), this will simulate a hi-hat close pedal action. This functionality is intended for drum modules / percussion applications.

Based on the default Pad MIDI Note Numbers of TD-25 module, the **Hi-Hat Open** note number is the **46**, and the **Hi-Hat Pedal** is the **44,** so the MIDIConfig.txt file will be created as follows:

Contents of the Suggested "MIDIConfig.txt" File



**For more detailed information please refer to the document SmartWAV2_MIDIMode.pdf, section 7.*

5.4- TD-25 Drum Module Configuration

SmartWAV2 + MIDI Adapter can be used in two ways:

1.-To completely replace all the TD-25 drum module sounds of a kit.

To deactivate/mute/bypass the sounds of the TD-25 module: press **MENU**, then **SETUP**, scroll to **MIDI**, select **LOCAL CONTROL** and turn it to **OFF**.

**For more detailed information please refer to the TD-25 Parameter Guide: MIDI-Related Settings section on page 14.*

2.-To replace only a drum pad sound, or to mix/layer TD-25 drum module sounds plus SmartWAV2 sounds, as an example: TD-25 module snare sound + SmartWAV2 tambourine sound, both triggered each time the snare drum pad is hit.

Hit the pad to configure, press **MENU**, then **SETUP**, scroll to **PAD NOTE NUMBER**, select the desired drum pad and then adjust the MIDI number to match the note number of the microSD card audio .wav file to be triggered.

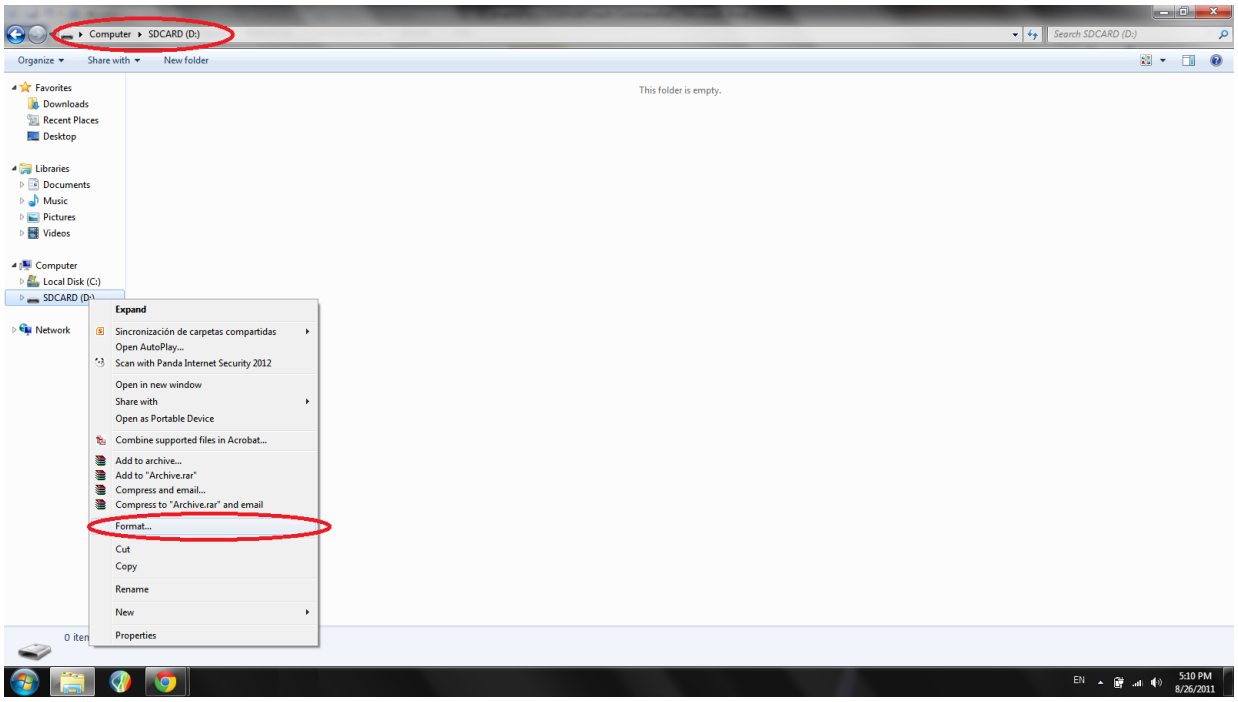
Secondly, roll the **Volume** knob, hit the same configured pad as above and adjust the volume of the TD-25 drum sound, if the volume is set to zero, then all the sound will be replaced by the SmartWAV2, but if this volume parameter is set to a medium level, then it will be mixed/layered with the SmartWAV2.

**For more detailed information please refer to the TD-25 Parameter Guide: Pad Note Number Settings section on page 13.*

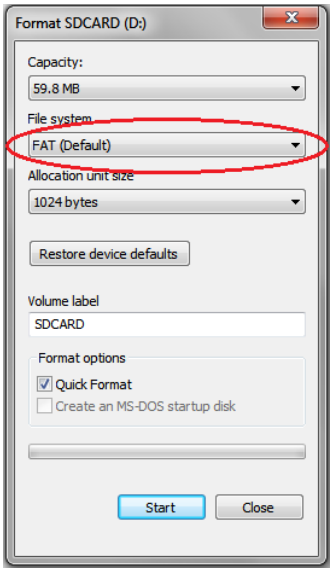
6- Formatting MicroSD Card:

It is recommended but not strictly necessarily to format the micro SD card for first use, in this section a format to new micro SD card to FAT format is explained.

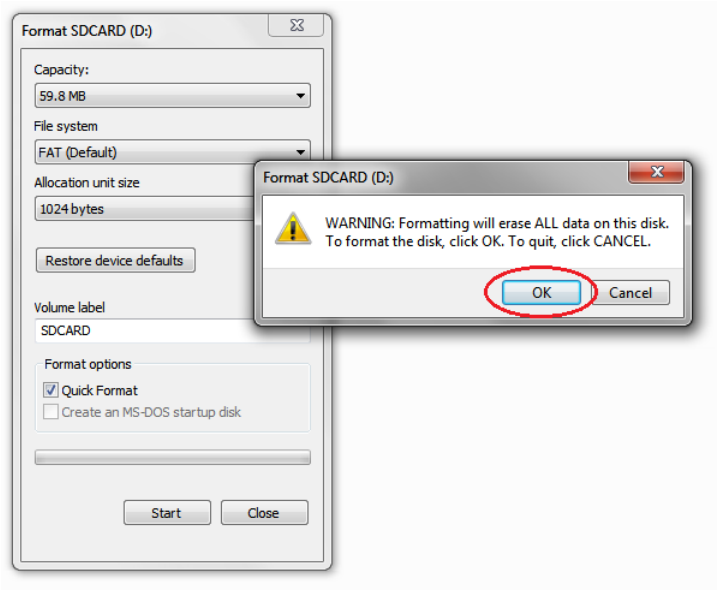
A.- Open a new windows explorer right click on the microSD card and a menu appears, select the "FORMAT…" and click on it. *(Note that formatting a micro SD card will erase all the contents of it)*.



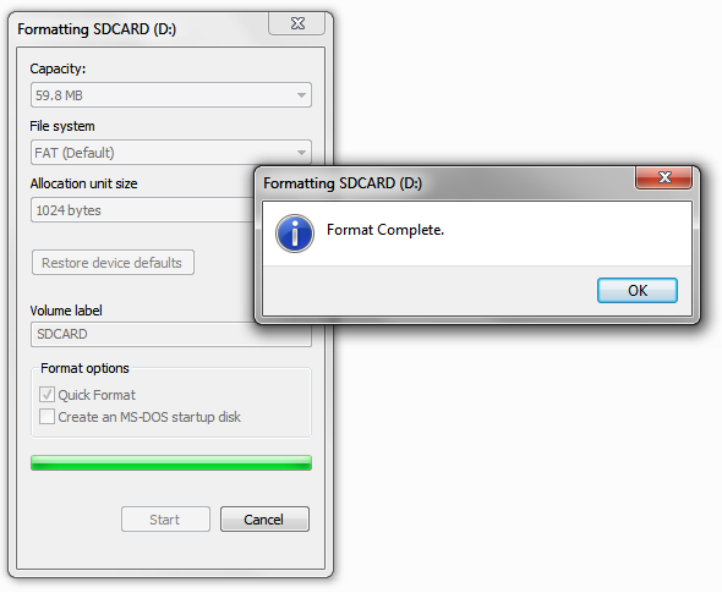
B.- A new window will pop-up, chose FAT(<2GB) or FAT32(<32GB) on the File System menu, and click start.



C.- Click OK on the new window and wait to the PC to perform the format.



D.- Now the microSD card is ready to load tracks and songs!



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