How to easily create SoundFonts in Viena version 1.160 (and later) using the **Definitions** concept
October 2020

The Definitions File

Version 1.160 of Viena (both the 32 and 64 bit versions) introduced a new method of creating or updating a SoundFont: the Definitions concept. This concept is based on a text file that you can create using any standard text editor, but your method of choice might actually be to use a spreadsheet program. In this document there will be references to one free spreadsheet program you can use: LibreOffice Calc.

There is a new function in Viena's "File" menu: "Import Definitions file". Shortcut is CTRL-ALT+D. The file types recognized by Viena is either a Comma Separated Values file, normally with extension ".csv" or a TAB-delimited text file (normally with extension ."txt"). **Note**: Viena will always check which delimiter is actually used. The main reason for using TAB as the delimiter is that it enables the use of the comma character in text and as the decimal mark in floating point numbers instead of the dot character.

The Definitions file can contain up to three sections: one for defining audio *Samples* you want to add to the currently open SoundFont, one for defining *Instruments* you want to add, and one for defining *Presets* you want to add. The file does not need to contain all three; if the SoundFont already contains all the samples you need, you may leave out this section. Likewise, the file may contain a section for Samples and a section for Presets, but none for Instruments. In this latter case you would add new samples, but no new instruments.

Note: To use this feature to create a **new** SoundFont you may choose to create it manually before reading in the Definitions file. Either press the "New file" button or hit CTRL+N. If you do not create it manually, Viena will create it for you using the name of the Definitions file. You may later change this name when you save the file.
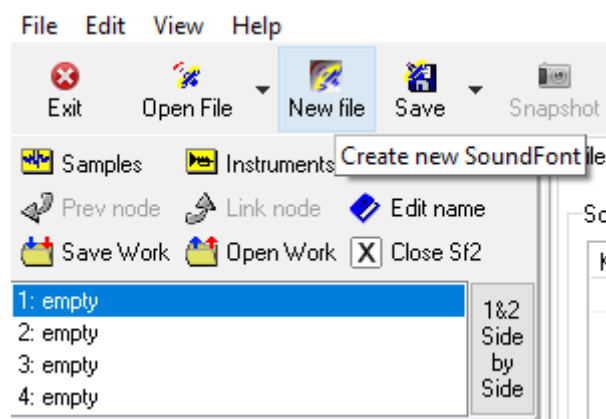
Table 1 - Section Samples

A	B	C	D	E	F	G
Samples	**Name**	**Loop S-E**	**Root key**	**Correction**	**File name**	**Folder**
	Strings 24	1000-20000	24	-3	Strings 24	
	Strings 33	1567-23000	33	5	Strings 33	
	Arco A1		45		Arco Strings A1	C:\Strings\Arco Strings
	Arco G2		55		Arco Strings G2	
Search paths:	C:\Sounds1	C:\Sounds2				

The table above (Table 1) shows seven columns for six samples, as they would appear in a spreadsheet. Column A informs Viena that the next rows will contain data for audio samples. In column B you must assign a name to the sample. This is the name that you will see in Viena. The name would normally be similar to the file name, but it can be anything else (using standard ASCII characters). Column C may contain loop data. You can use a minus sign or a space to separate the two numbers (thus both 1000-20000 or 1000 20000 are accepted). Note that the audio file may also contain loop data and that any data you enter here will override the original data. The same goes for Root key. If you leave this cell empty, either the root key value in the audio file will be used, or, if unavailable, standard C (MIDI #60) will be assigned. Correction (in cents) may also be defined in the audio file. Column F needs to contain the file name (extension ".wav" can be left out) while column G may contain a folder path. You can leave this empty if the sample will be found in the folder already referred to for the previous sample, as for samples Arco G2, or in folder in a "Search paths" (described below), as for Strings 24 and Strings 33, which hopefully will be found in folder C:\Sounds1\MyOwnStrings.

Column A may thus also contain the text "**Search paths:**" followed by a list of folders in cells B and onwards. If the cell in G is empty for a sample, and no path has been defined for the previous sample, or, if the previous path is invalid for the sample, Viena will search all the folders and subfolders in "Search paths:" until a matching file is found.

Table 2 - Section Instruments

A	B	C	D	E	F	G	H
Instruments	**Name**	**Generators**					
	Strings1						
		Sample name	Global	Strings 24	Strings 33	ArcoA1	ArcoG2
		Key Range		0-29	30-38	39-48	49-57
		Attenuation		1	1		
		Sample Mode	1				
		Filter Frequency		3000	4000		
		Vol Env Release		0.8	0.7	0.6	1

The table above (Table 2) shows eight columns for one instrument with one Global split and four sample splits, as they would appear in a spreadsheet. Column A informs Viena that the next rows will contain data for one or more instruments. Note that the layout of Table 2 resembles the layout for Instrument splits is Viena.

In column B you must assign a name to the instrument(s) (using standard ASCII characters). This is the name that you will see in Viena. Column C will list all the Generators you want to define for an instrument. In the example spreadsheet file included with the distribution package, you will find two

pages: one for definitions and one listing available Generators. There are 40 of these listed and you only need to pick the ones you want to use in the instrument.

Normally you would at least define the Key Range. If undefined the full range 0-127 will be applied. The key range may be expressed in several ways:

1. as two numbers with a minus sign between (as in Table 2)
2. two number with a space between (e.g. 0 29 , which is the same as 0-29)
3. as one single number (N) for a single key split
4. as a single number preceded by a minus sign (-N) in which case the low limit will be equal to the high limit of the previous split (if any) +1. For the first split this low limit will be equal to 0.

By way of example:

A	B	C	D	E	F	G	H
	Strings1						
		Sample name	Global	Strings 24	Strings 33	ArcoA1	Arco62
		Key Range		-29	-38	39 48	-57
		Corresponds to		0-29	30-38	39-48	49-57

Note: also **vel range** (for the velocity range) may be expressed in multiple ways according to the scheme above.

Note: the Global split in column D **must** always be present even if left empty.

Note: the decimal characters for floating point numbers may either be a comma [,] like in Table 2, or a point [.].

Note: "Sample Mode" is the standard name for "loop the sample". Accepted values are 0 for no loop, 1 for a normal loop, and 3 for a loop that continues to the end of the sample after a Key Off message. If left empty, default value (0) will be used.

Note: there is nothing preventing you from assigning the same name to multiple instruments, even if it is a really bad idea as Viena lists and sorts Instruments by name.

Note: Floating point numbers (like for **Vol Env Release)** may contain comma as the decimal mark character to separate the integer part from the fractional part of the number, in which case the file **must be saved as TAB delimited**. In LibreOffice Calc you can choose the delimiter when saving (see below). Do NOT choose any other than comma or {Tab}. No other delimiter will work.

The *Instruments* section may contain as many Instrument definitions as you want – as long as the SoundFont specifications are acknowledged: the limit of definitions in a SoundFont is 65536 (for both number of Instruments and number of Instrument Generators).

Table 3 - Section Presets

A	B	C	D	E	F
Presets	Name	Generators	Bank	Preset	
	MyStrings		0	49	
		Instrument name	Global	Strings1	Strings2
		Key Range			
		Attenuation		2	
		Filter Frequency	0.5		0.5

The table above (Table 3) shows definitions for one Preset with one (mandatory) Global layer and two instrument layers, as they would appear in a spreadsheet. Column A informs Viena that the next rows will contain data for one or multiple Presets. In column B you must assign a name to the Preset(s) (using standard ASCII characters). This is the name that you will see in Viena and in other software making use of this SoundFont. Column C will list all the Generators you want to define for a Preset.

Note: key range and vel range may be expressed as described above for Instrument splits. In the example above no values are entered as these will be taken from the definitions of each of the two instruments. This row could thus safely be removed.

Note: SoundFont Presets are always referred to by two integers: a number for the **Bank** and a number for the **Preset**. Melodic Banks range from 0 through 127 while 128 is reserved for the Percussion Presets. Preset numbers can be in the range 0 through 127. Thus, as each Bank can contain 128 Presets and as there may be up to 128 melodic banks, you can have a maximum of 128 x 128 = 16384 Presets. Should be enough for anyone.

Note: two Presets cannot occupy the same Bank:Preset number combination (slot), so when defining multiple Presets be sure to assign unique Bank and Preset numbers to each of them. In this example, this Preset will be referred to as "000:001 Preset1" in Viena (and its sibling SynthFont).

Note: Generator values in layers are NOT absolute but used to modify the actual values defined in the Instrument. Hence, a value of 0.5 (or 0,5, if your Windows is set to use a comma as the decimal symbol) is perfectly valid for Filter Frequency cutoff. The cutoff Frequency of the Instrument will be halved.

This section may contain as many Preset definitions as you want – as long as the SoundFont specifications are acknowledged.

Using comments

You may use comments in your table in various places. Comments must be prefaced by the semicolon character (;). Here are examples of valid comments (cells with yellow background):

A	B	C	D	E	F	G	H
Instruments	Name	Generators					
	Strings1						
		Sample name	Global	Strings 24	Strings 33	;ArcoA1	ArcoG2
		Key Range		0-29	30-38	**39-48**	**49-57**
		Attenuation		1	1		
		Sample Mode	1				
;		**Filter Frequency**		3000	4000		
		Vol Env Release		0.8	0.7	**0.6**	**1**

The semicolon character needs to be present only once per row, in the first cell of a comment. A comment may thus be distributed over several columns in one single row.

Also note in the example above that when splits ArcoA1 and ArcoG2 are comments, the Key Range values and Vol Env Release values in columns G and H (gray bakground) loose theire meaning and will not be used.
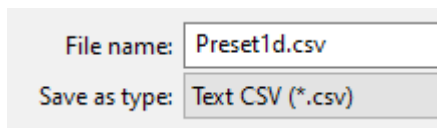
Export into a readable file

Viena cannot read native spreadsheet files but only files in text format with the columns of the spreadsheet table separated by a delimiter character. Two delimiters are supported: comma and TAB. Luckily most spreadsheet programs can export the data into a suitable text file. You can usually use "Save As..." to select and save a text file, but be aware that the spreadsheet program will keep this new file in memory and lock it from use by other programs. In LibreOffice Calc you can use "Save a Copy..." to keep the original file in memory after creating the text file, which is now not locked.

The example file provided with Viena is in ODS format (OpenDocument Spreadsheet) and was created using LibreOffice Calc, but works equally well in e.g. Microsoft Excel.
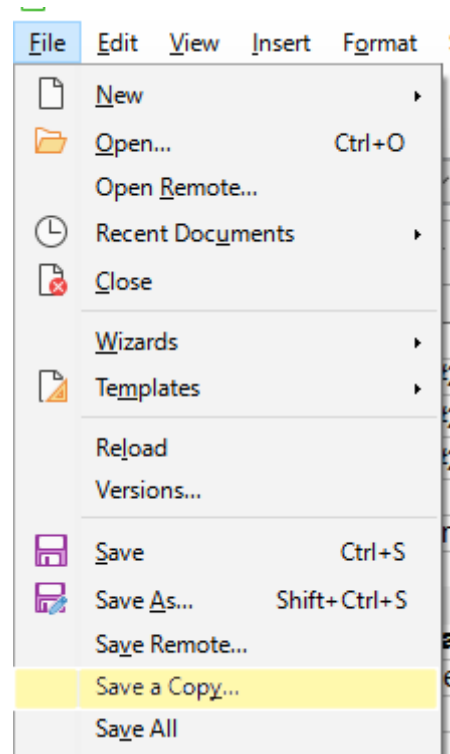
But, at first, make sure that you have the sheet with the definitions as the active one as a CSV file can contain data from one sheet only.

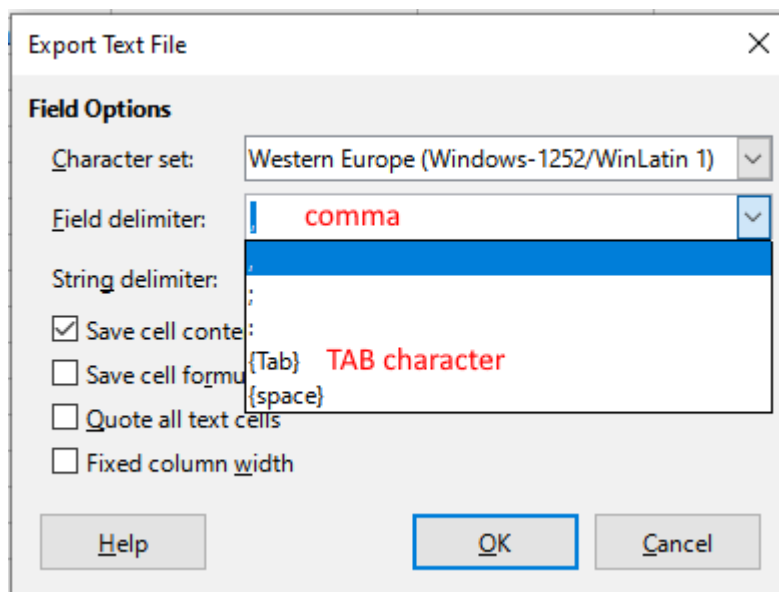In the file Save As... dialog box, choose the CSV file type:
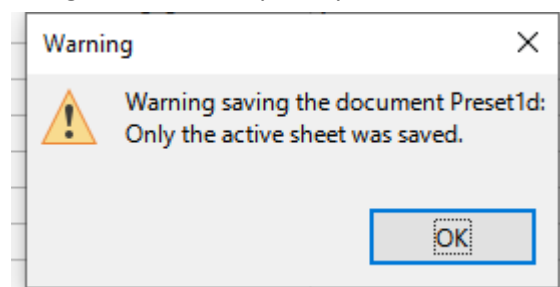
| File name: | Preset1d.csv |
| Save as type: | Text CSV (*.csv) |

Keep the default values here:

You can ignore this next warning, because it only tells you that the other sheets were not saved, only the active sheet:

When using a spreadsheet program to create the Definitions data you may use functions and cell references, like in the example shown in the image below. Notice that the cell E11 does not contain the name of the sample but a reference to cell B2 that contains the name.

When exporting into text, all functions and references will be replaced by the end result ("what you see is what you get").

	A	B	C	D	E	
1	Samples	Name	Loop S-E	Root key	Correction	File
2		Strings 24	1000 20000	24	-3	Stri
3		Strings 33	1567-23000	33	5	Stri
4		Arco A1		45		Arc
5		Arco G2		55		Arc
6	Search paths:	C:\Sounds1	C:\Sounds2			
7						
8						
9	Instruments	Name	Generators			
10		Strings1				
11			Sample name	Global	=B2	
12			Key Range		0-29	
13			Attenuation		1	

Likewise, for the generators you can pick the name from the Generators page:

17				
18				
19	Presets	Name	Generators	
20		MyStrings		
21			=Generators.A$40	
22				

This way you can assure that the Generator is correctly spelled ("Instrument name" in this case).

Note: the capital of characters in any names have no importance. Thus Sample name is the same as SAMPLE Name.

End of data

Finally, if you want to include comments, formulas and such, you can do so after including the text **"End of data"** as an entry in column A (must be in A) to inform Viena that there is no more data for Viena to interpret. The next lines can for example carry some default values you may use often.

	A	B	C	D	E
18					
19	Presets	Name	Generators	Bank	Preset
20		MyStrings		0	49
21			Instrument name	Global	Strings1
22					
23	End of data	- only needed if there are any contents below this line			
24	These rows can be freely used for comments and such				
25	For example:	0-29	30-38	39-48	49-57
26					

In this example a number or ranges has been stored for further use.