



POWER USER

MUSIC PRODUCTION and PERFORMANCE With the Motif

SLICE and SLICE+SEQ

STEP-BY-STEP TUTORIAL

- Import a sample into a Pattern/Song and SLICE it
- Sampling with the SLICE+SEQ sample type

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IMPORTANT NOTE: The first section of this guide concentrates on PATTERN mode. The Motif is context sensitive. It matters what mode you are in when you sample or import your data. If you are using SONG mode, the Phrase data will be written once to a linear track, the Voice assigned will be memorized in the MIX. You can then use the TR LOOP function to make the pattern cycle. TRACK LOOP lets you cycle any data from measure 1. Perfect for making a sliced audio loop work in a Song. Make sure you sample or import your data while you are in the Mode you intend to use.

Slice: Slice is a function that is designed to make audio loops (up to 8 measures) work at different tempos without adverse pitch change (munchkin-ization). It accomplishes this by analyzing the audio and breaking it into smaller segments (slices). Each slice is mapped to the MIDI keyboard on successively higher notes of a Pattern Sample Voice or Song Sample Voice. A chromatic scale of MIDI data is created (in a User Phrase in Pattern mode/to a linear track in Song mode) accurately placing the trigger notes so that when the scale is played back it reassembles the audio slices. The Motif can create up to 128 slices maximum – the number of notes on a MIDI channel. The Slice function creates a MIDI phrase to trigger the audio slices. A Phrase is a Pattern mode structure that also memorizes certain setup data such as what Voice goes with the sequence. In Song mode the data is written to a linear track.

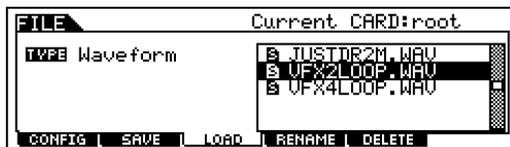
SLICE+SEQ: This is a sample type "macro" that takes you through recording-trimming-slicing the sample. And although similar to the SLICE job you'll get to see up close the differences, if you complete this tutorial.

SLICE: Step-by-step

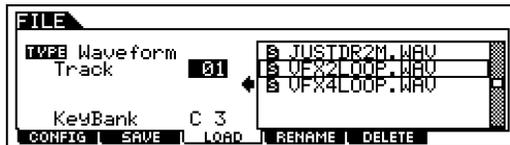
Import a wave into a PATTERN and execute the Slice Function.

In this example we will import a sample (.wav) from a SmartMedia card. You can, of course, substitute a SCSI drive. Once you have transferred your .wav files to either a SmartMedia card or SCSI drive you are ready to Import them into the Motif.¹

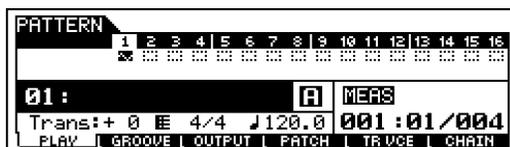
- Select a blank PATTERN
- Press FILE/ F1 Config / SF1 Current
- Select the media you are using CARD or SCSI.
- Press F3 LOAD
- Set the TYPE to WAVEFORM and highlight the wave you wish to import.



- Press ENTER and you can set a target Track and Keybank (note).



- Press ENTER and YES to execute. The screen will read, "Mix Stored", then, "Completed" briefly.
- Press the PATTERN button to return to the main Pattern screen.



Note that the track has an icon of a waveform below it. This denotes that currently a Pattern Sample Voice is assigned to that location in the MIXER.² Play the key to which you imported the sample, C3, in our example, to hear the sample.

¹ You could also have sampled the data in yourself. It does not matter how you get the sample in the Motif for this exercise.

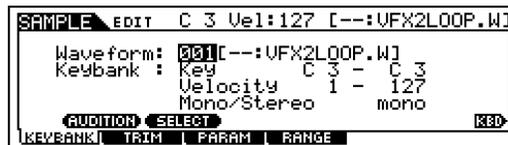
² The Sample Voice bank is MSB/LSB: 63/50 on the Motif Mixer: Location 001.

If you press MIXING/ F3 Voice you will see that Motif has inserted and stored the new Sample Voice in your mix.

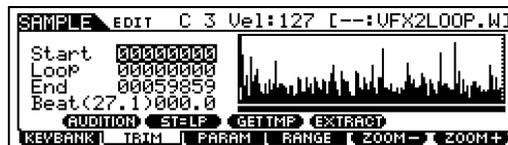


Currently there is no MIDI data (Phrase) to trigger this sample. We have only placed the sample in a Pattern Voice location, on a key C3. When you SLICE the sample, the Motif will automatically create a MIDI phrase to reassemble the audio plus you'll be able to tempo adjust it without pitch penalties.

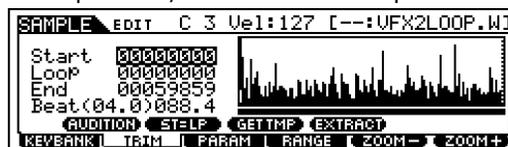
- Next you need to edit the sample – SLICE will work on LOOPS of up to 8 measures in length. In order to do this press the INTEGRATED SAMPLING button followed by the EDIT button. This will place you in SAMPLE EDIT.



F1 Keybank: Here you see the wave was imported to Waveform 001. In the example it is named [VFX2LOOP.W]. Holding down the SF1 AUDITION button will let you hear the sample. SF2 SELECT is for when you have imported multiple samples to the same Keybank and are going to velocity swap – this lets you select between samples assigned to the same key.



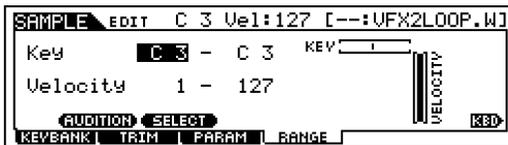
F2 TRIM: This is where you can set the Start Point, the Loop Point and the End Point. SF2: ST=LP is a quick way to set the Start point equal to the Loop point in one action. SF3: GET TMP or Get Tempo will, when pressed, calculate the tempo.



It assumes the distance from the Start-to-End point is one measure (4.0 beats) of 4/4. Therefore, if your loop is 2 measures multiply the result by two. After pressing SF3 you see that "Beat 04.0 = 88.4 BPM" this means that if the whole phrase is one measure at 4/4 then the tempo is 88.4, however, if the phrase is two measures it is double that 176.8 BPM. SF4 EXTRACT will keep the data between the Start and END points and dump the rest. (TRIM). The F5 "-ZOOM" and F6 "+ZOOM" work in conjunction with the highlight. If you highlight the START value, then the ZOOM will be effective on the front end of the graphic view. And if the highlight is set to the LOOP value, then the ZOOM will be effective at the Loop setting. And if the highlight is on the END point, then the ZOOM will zoom in on the last segment of the graphic. The amount of ZOOM also effects the resolution of the DATA WHEEL – if you are zoomed in your resolution is finer and when zoomed out your resolution is coarser.



F3 PARAM: Here is where you can turn the loop on or reverse the wave or set it to play as a "oneshot". By changing the Original Key you can effectively tune the pitch of the sample by offsetting it. You can also pan the sample to a specific location in the stereo field.



F4 RANGE: Here you can set the key range (the number of keys responsible for triggering this sample and its velocity range. When you have imported several samples to the same keybank this is where you set the ranges for them. You can import several samples to the same key as long as each had a unique Velocity range. A maximum of two samples can occupy the same ranges simultaneously – this is to accommodate stereo. This means you can stack 64 stereo samples in a keybank as long as each had its own velocity or unique note.

Once you are happy with your edits you can press the JOB button to prepare to SLICE the loop. Slicing will allow you to playback the loop at various tempos without effecting the pitch of the audio. It does this by breaking the contiguous audio into smaller segments (slices) each to be assigned to a successively higher MIDI note. It then creates a chromatic scale of MIDI data with proper timing, accurate to 480 pulses per quarter note, to trigger the audio playback seamlessly. The different Slice Type algorithms will add additional audio to the slices to hide the fact that they are sliced when the tempo slows down.

- Press JOB/ F1 Keybank
- Scroll down and select Job #12 SLICE



- Press ENTER



In the screen above you see the SLICE setup page. This is basically a "trial and error" type operation. You will experiment until you hone in on the correct settings. The Motif will let you audition your results before you commit to creating a new waveform. In the upper right corner you can set the "LOWEST KEY". This refers to the note from which the chromatic MIDI scale will be created.³ The Motif can create up to a maximum of 128 slices because there are 128 MIDI notes on a channel. It will start at the "lowest key" and go up to G8. If more keys are needed it will wrap around and start at C-2 and come up to the note just below the starting point.

You can select the SLICE TYPE: either BEAT for drum/staccato type stuff or PHRASE for sustaining stuff.⁴ Try the

³ This parameter is not available when using the SLICE+SEQ sample macro.

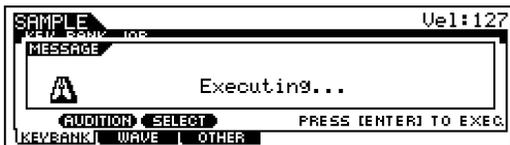
⁴ See the "Understanding Slice" article for detailed descriptions of the various BEAT and PHRASE algorithms.

lowest numbered Beat or Phrase algorithms first. Advance to higher numbers only after trying all the Sensitivity settings for the type. The QUICK type is also available but it does no audio analysis for accurate timing. With the Quick setting Slices are made by musical division only – meaning it divides the audio into mathematically equal parts rather than analyzing where the audio actually occurred. Beat and Phrase types will analyze and create slices where the audio occurs to the nearest 480ppqn⁵. Beat 3 Type and Phrase Types 1-4 all use some form of musical timing resolution to “sub-divide” the slices and help in the analysis. You can use this to get different “feels” from the data. Experimentation is the name of the game – once you learn the basics. Until you know what it is capable of, it is difficult to know how to experiment. But you will find that certain “sub-divisions” settings can radically change the overall feel of the audio when you time stretch it by changing the tempo.



It is imperative that you set the Measure and the Meter on this setup page *accurately* so that the Motif can slice the segments properly, musically, or not.⁶ The point is, the number of measures and the time signature are data the unit uses to figure out musical timing. Set the SENS (or Sensitivity) to 3 or 4. This way you have room to move up or down if you get too many slices or too few slices.

- Press ENTER and YES to execute the SLICE. This will take some time to execute.



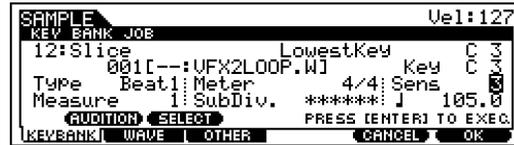
When it is finished you can AUDITION the results two ways before deciding to keep or dump the results and try again. First, press

⁵ 480 Pulses per quarter note; 60= 1/32 note; 120 = a 1/16 note; 240 = an 1/8 note.

⁶ If you lie to it your results will be a reflection of your input. These are used for calculations related to musical values.

the SF1 AUDITION button and listen to the results. Move the cursor over to TEMPO and set the tempo to the BPM you intend on using for the pattern. Press and hold the SF1 AUDITION button and listen again.

The second method of auditioning the data is to play the keyboard starting on the note you targeted during setup, C3 in our example. Each note should contain a portion of the sample loop as you play up the keyboard. If it was a drum pattern, you can tell if there are too many slices when a single kick or snare hit is split between multiple keys. You want each hit as clean as possible. Do not worry if you cannot play the chromatic scale as well as the Audition button (seq) because it has access to the timing and duration of each slice (the slices will not be equal unless you used QUICK).



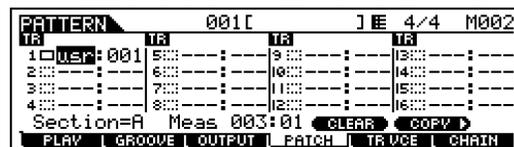
If your results are good you must hit F6 OK **before exiting this** screen. If you do not, the data is dumped. By pressing F6 OK you are accepting the results and the Motif will create a new waveform, in the lowest numbered available waveform, 002, that will contain the sliced set of samples.

- Press F6 OK to accept the results.



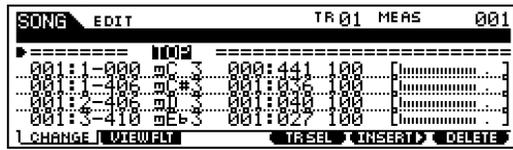
Notice that it creates a new waveform at 002, the default name is “wave001”.⁷ It **keeps** the original audio at 001. It will also place a new USER Phrase in your Pattern PATCH. Pattern Patch is found from the main Pattern screen at F4. A Patch represents what Phrases are active in this Pattern Section.

- Press PATTERN to return to Pattern mode and then F4 to view the PATCH.

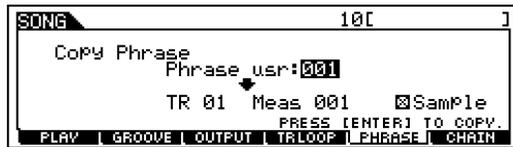


⁷ You can rename it later if you wish.

you can event edit the resulting MIDI data like any other track.



The PHRASE COPY function found on F5 of SONG Mode allows the user to go into a Pattern and "get" any USER PHRASE and its associated data including the sample. Here's how it works. You go to Pattern mode and identify the Phrase number of the USER phrase you are interested in. Go directly to your Song (the Motif will remember the **last** Pattern you were viewing and reference USER Phrases within it). Press the F5 Phrase button.



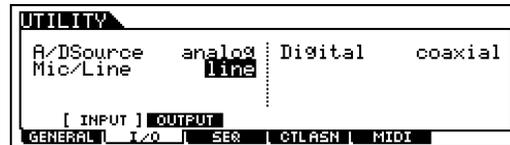
It will go into the **last** Pattern viewed and get any USER Phrase. The above setting shows the Motif ready to import Pattern mode **USR:001** and insert in on **TRACK 1**, from measure 1 of the current SONG and it will include the Sample VOICE. This means then that you can use a SLICED Phrase from Pattern mode in a linear Song. You can either use the TR LOOP feature outlined above or cut/copy/paste the data like any other MIDI data.

SLICE+SEQ: Step-by-step
Sampling a wave into a Pattern using the SLICE+SEQ Function.

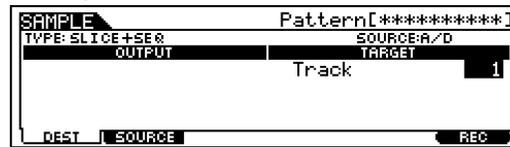
This is very similar to the SLICE JOB function outlined above with the following differences. SLICE+SEQ is a sampling type. It is a "macro" of sorts. This means it is a series of functions that have been linked together by the operating system for ease of use. It moves you through the process of recording (sampling), trimming (editing) then slicing (time stretching). The end result will be a sliced audio loop, where the SLICE routine described in the first half of this article left you with two waveforms: the original and the sliced version. This function will only create the Sliced audio phrase. It will discard the original audio loop. Again the advantage of slicing a bit of audio is that you can then

use it at various tempos or you can use to match the tempos of various samples.

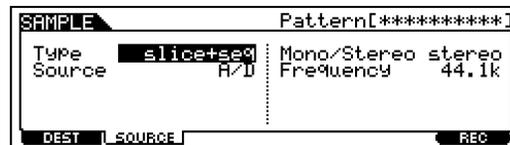
- Go to UTILITY and set the I/O for the type of input signal you have connected: LINE or MIC. This is found under F2 I/O. For our example we will describe a stereo connection from an audio CD player. Set the A/D Source to ANALOG and set the input to LINE.



- Select a blank PATTERN
- Press the INTEGRATED SAMPLING button
- Press **F1 DEST** (or Destination) is Track 1 - change as necessary to import more data.

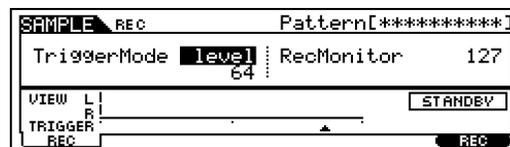


- Press **F2 SOURCE**



- Set the TYPE to SLICE+SEQ
- Set the Source to A/D
- MONO/STEREO to Stereo
- FREQUENCY to 44.1kHz

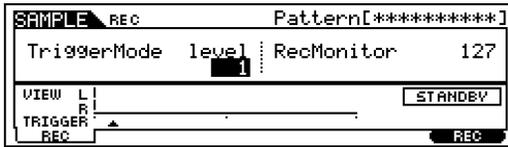
F6 REC



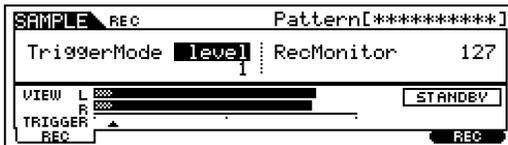
- Press F6 REC to enter RECORD STANDBY.

Here you can select the TRIGGER MODE - basically how sampling will begin. LEVEL will start sampling whenever the level exceeds the threshold setting, once you arm the sampler. This can be ideal when sampling from CD. (You might also use the MANUAL setting - where you arm and stop sampling by pressing a button). Lower the trigger level to 1 - CDs have little or no

background noise. Although you might have to select a slightly higher level if you are sampling from vinyl or a tape that has surface noise.



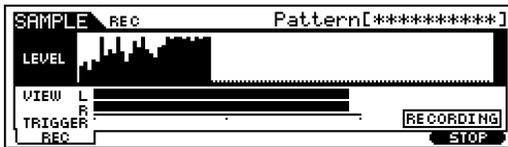
- Test the level – get it as close to the top without clipping – you will see little lightening bolt icons when you clip. The gain control is on the Motif back panel next to the left input. When you have good level stop playback of the CD. Cue it to the index of the track you want to record. Now we arm the sampler.



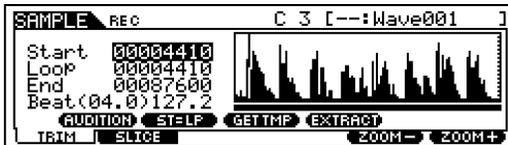
- Press F6 again to arm the sampler. It will read "waiting..."



- Start playback to start sampling. The Motif will draw the waveform as it samples.



- Press F6 STOP to end sampling. The Motif will show you the waveform. The Start point is always 00004410 if you sample at 44.1kHz because it has a pre-record feature set to 100ms. This way, even if the level trigger mode misses a little bit of the beginning of the audio, you can back up the start point to get it (see below).



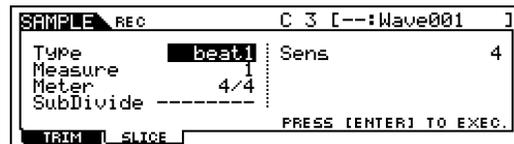
The real start point, in the example turned out to be 00003214. Use the wheel to change the start time, as necessary, the graphic will adjust. The START line is solid and the LOOP point is a dashed line. Use the F5 and F6 buttons to ZOOM In/Out. If you want to zoom in on the Start point, simply highlight the Start value and press the F6 ZOOM+ button. Zoomed view (below):

Note the short black line just above word "GET" in the GET TMP icon. This indicates that the zoomed view is about 1/8 of the entire waveform. In the previous view you can see that that same line is indicating the entire waveform is shown.



If you want the entire wave to loop, set the LOOP value equal to the START value using the cursor to highlight the LOOP value and the Data Wheel to match the Start value.¹⁰ In the above screen example that would mean changing the LOOP value to 00003214. Simply spin the wheel counterclockwise until the value stops. Then execute the EXTRACT function at SF4. This would discard the unused data from samples 00000000 – 00003213. It would also renumber the data so that the Start Point would be 0000000 and the end point would be adjusted accordingly. That is memory that you can get back.

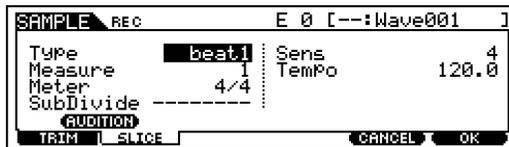
F2 Slice



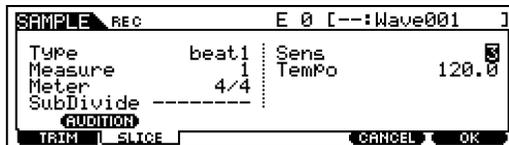
- Press F2 SLICE Here you are given parameters to set up the slice function. (Note: you do not get the option to set the LOWEST KEY – it will be assigned to the lowest note of your Motif. E0 on a Motif 7, C1 on a Motif 6, etc. (see the article on Understanding Slice for details on the different Slice algorithms).
- Press ENTER to execute

¹⁰ The Loop Point cannot be set before the Start Point, naturally. However, the Loop Point can be set later than the start point (useful for pickups).

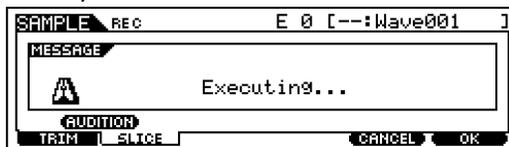
- When completed you get the option to AUDITION (SF1) and to set a tempo at which to audition the results.



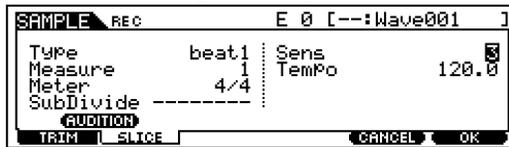
- Set the TEMPO to the desired value and audition again.
- Also audition the notes on the keyboard to determine if you have too many slices or too few slices.
- If too many, lower the SENS (Sensitivity) setting. The lower the sensitivity the fewer the slices.



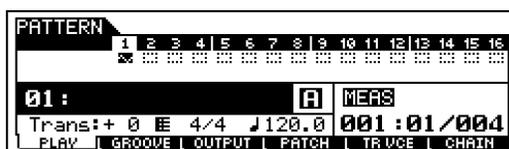
- After resetting the Sensitivity and/or Type press ENTER to execute again.
- It takes approximately 20 seconds per measure to process. Sing the Jeopardy theme while you wait...and remind yourself that you could not accomplish what it is doing in less than an entire day.



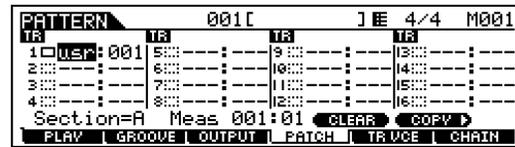
- Audition it again using both methods.



- If satisfactory, press F6 OK. (Until you press F6 OK you have not accepted the results). By pressing F6 you accept the results and the Motif will create a new waveform at 002 and dump the original sample from waveform 001. It will also create a USER PHRASE and place it in the Pattern Section PATCH.



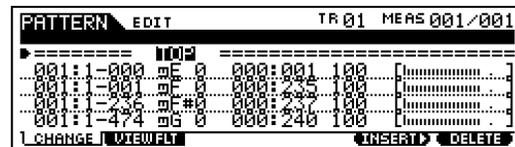
- Press PATTERN to return to the main Pattern screen. Note the waveform icon below track 1.
- Press F4 Patch to see how the Motif has inserted the user phrase 001 that will trigger your sliced audio.



It is very important to the concept of the Motif ISS to realize that in the above SECTION PATCH, track 1 is now an "audio" track **because** it contains a Phrase that is triggering an audio sample. If you were to deactivate this Phrase (un-PATCH it), and then activate the Phrase on track 16, then Track 16 would be the audio Phrase.

You can create as many sliced audio phrases as you need per Pattern Style. 16 Phrases, whether MIDI or Audio can be activated simultaneously, obviously. But If you were to activate the above USR 001 in SECTION P, no matter what track you activate it on, it will playback your audio Phrase correctly recalling the appropriate associated Sample Voice.

- Press EDIT to view the EVENT LIST



Here you can see that each slice has a MIDI note-on to trigger it at the appropriate analyzed time.

SLICE Summary: The SLICE job and the SLICE+SEQ sample Type are two ways to go about creating Sliced audio phrases. The main differences are that the SLICE job is setup manually and gives you a few more options: setting the lowest key for the chromatic scale and it allows you to keep both the original audio wave and the Sliced version. The SLICE+SEQ job is for when you know you *only* want the Slice version and are willing to accept the default map for the slices.

ADVANCED: Unlimited Possibilities

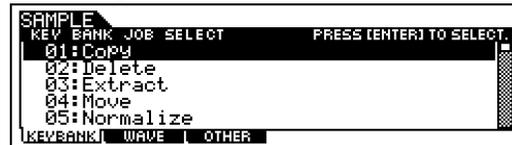
You can create a Pattern or Song Sample Voice that contains all of your audio phrases. For example, let's say you have a couple dozen audio loops that you have selected from a CDROM and wish to use in

your current composition. (Often commercially available sampling CDs have both an audio disk and a .wav disk). Because it is often more convenient to audition .wav type data from your computer¹¹, you can use it and then simply drag-and-drop the ones you want to work with to a SmartMedia card or to a ZIP disk for conversion to the Motif. This is why it is recommended that you get a SmartMedia Reader/Writer or a SCSI ZIP; it makes it easier to audition and move samples to and from your computer. If you work with ACID you can export data from the program as .wav files, move them to SmartMedia or Zip, and import it to the Motif. You can import all of the .wav files into a single Motif PATTERN SAMPLE VOICE or SONG SAMPLE VOICE – import them to the same **Waveform** just change the Keybank (note) for each. Simply target each audio wave to a higher note. This Sample Voice will simply hold all of your audio clips.¹² In this single waveform you can EDIT them make sure each one is looped perfectly, etc. Use the KBD (Information) button + the KBD NOTE to select an individual Slice within a Waveform – this is done on the KEYBANK screen. Then you can SLICE the audio loops one at a time, because the Motif will target a new Sample Voice and create a new waveform containing the slices. As you create new Sliced PHRASES via this function, the Motif will create the MIDI data in the lowest numbered empty USER Phrase. Don't worry it will not overwrite a previous USER Phrase (it **will** replace it in the current Section PATCH) but the data still exists in its USER Phrase. Continue to slice and create Phrases in the manner – you can PATCH them, manually, into Sections later. Remember on the Patch screen you can activate or deactivate a Phrase at any time. The limit to the number of sliced Phrases you can playback simultaneously is 16, of course, the number of tracks per Section. (Well without bending the rules...which of course is possible). But typically, a sliced phrase uses an entire sample Voice because before you slice it, you have no idea how

¹¹ You can usually audition without having to load when using a computer program like Sound Forge.

¹² – you can still SLICE them because you will be targeting a new Sample Voice and creating a new Waveform (the sliced audio) for each.

many slices are going to be necessary to make it work – therefore it reserves the entire Voice (all 128 locations). However, if your Phrases are relatively short, then you can easily move the slices around like any other samples. You can copy individual notes (sliced auto) into any other waveform. This is great for making Kits or combining Sliced Audio Phrases.



Once you know that your sliced Phrase is like 8 or 16 slices, and that you can EDIT, REVERSE, COPY, and otherwise mangle each slice individually, nothing is to stop you from combining a group of sliced audio clips into one VOICE. You can maintain the MIDI Phrase by transposing it or setting the Lowest Key parameter carefully when you create the SLICE. The MIX PHRASE job will allow you to move and combine the chromatic note data on to one phrase – as long as you keep track of the key ranges of the chromatic scales, you're cool. All that remains is to associate the new combined MIDI Phrase with the new Sample Voice.



The figure above shows you can copy any individual slice from one waveform into another – effectively combining sliced audio. Here the SLICES from one routine mapped from E0 up through B1, the SLICES created for Wave003 start at C3 and go up through F#5. I could easily copy the 20 slices from E0-B1 into wave003, on to keys E0-B1. Then I could merge (MIX PHRASE) the Phrases controlling each wave separately since the key ranges do not interfere. Then I need to point this new Phrase at the appropriate 63/50 bank Voice, and effectively I have two sliced loops playing on the same Track, independent of each other. (Thinking outside the box)...

Housekeeping

The samples you create in a Song or a Pattern are "local" to that Song or Pattern. You will not see them, for example, if you recall the next empty Pattern or Song. The

sample data, being "local", is automatically saved when you save the Song or Pattern to card or disk. The waveform is, however, accessible when you go to Voice EDIT – you will find your waveforms on a list of user waveforms. This means that you have an opportunity to use this data elsewhere, or to build regular Motif Voices from them. The Motif also allows you to copy data, including the samples, from Pattern Style to Pattern Style or even from a Pattern to a Song or vice versa.

Finally, there are two functions you must become familiar with if you are using the sampling engine of the Motif. They are found in the INTEGRATED SAMPLING JOBS.



- CLEAN UP MEMORY – this function is very important before you backup your data to card or disk. It will clear out any unassigned samples. This will look for an association for each sample, if it finds a sample just using up memory unassigned to a Pattern, Song or Voice, it will purge it from memory.
- OPTIMIZE MEMORY – this function is very important before you continue sampling sessions with long audio segments. If ever you delete a sample you may notice that your overall memory and sample time available values do not increase. This is because they are a measurement of contiguous memory. Optimizing the memory will move the data so that you have one large area of clean space. Optimize any time you have deleted sample data and need a larger free space.

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