BASIC OPERATION

This section outlines some simple ways of operating Soundshaper and is also a basic tutorial.
It gives links to alternative (and sometimes better) ways of doing things, as well as other features you might explore. Details are found in the Reference Sections.

INPUT and OUTPUT FILES

CDP is a system for transforming sounds to create new ones. While much audio software works in real-time (that is, you hear the processed result as it plays), CDP is a non-real-time system. It takes an **infile** – typically a soundfile – and produces an **outfile**. It usually does this very quickly, especially for short clips. Some processes require two inputs; some allow you to choose more than two. For output, Soundshaper uses temporary files which are are named automatically and placed in your chosen **TEMP OUTFILES** folder.

PATCHGRID

Completed processes appear in a table called the **Patchgrid**. Each row of the grid represents a chain of processes:

0	1	2	3	4	5	< 6 >	7
A >>	Ringmod	Transpose	Repeats	Stack	Convolve	Loudness	
B							

In this example, a source sound has been copied to cell A_0 and another to cell B_0. The sequence continues along Row A: A_0 is ring-modulated (A_1), then transposed (A_2), repeated a number of times (A_3), stacked harmonically (A_4), convolved with a second input file supplied by source B_0 (A_5), and finally its level is boosted (A_6). (The cell for Transpose is coloured differently as this is a spectral process.)

SELECT A SOURCE

The first step is to select a **source sound**, typically a **.wav** soundfile. There are a number of ways of doing this; the most obvious (but slowest) is to use the File menu or the the white file-selector icon:

On an empty patchgrid, cell A_0 is highlighted by default, so the source is copied to file ~A_0.wav (using CDP's **COPYSF**).
For the purposes of this tutorial, a percussive sound such as the CDP-supplied **marimba.wav**, or a piano, is ideal.

If the patchgrid is not empty, first click on the chosen row (or its 0 cell) to highlight the source cell for that row. If the cell is already occupied, the new source will replace it.

OTHER WAYS OF SELECTING SOURCES

Quicker ways of selecting a source (sound)file are:

- **Drag and drop** from an open folder
- **From the File List ('Pool')** – a drop down list of current project files
- **From the Recent Files list:** menu File | Recent File

AUTO-PLAY

Provided the option Auto-Play is checked (see Options menu), your newly loaded sound should be displayed and should play automatically. As looping is set by default, you can stop the sound by hitting the spacebar or clicking the STOP or PAUSE buttons.

FILE LIST (POOL)

The **FILE LIST**, or Pool, stores paths and names of project sources for quick re-use. As it is initially unpopulated, we'll add our newly-selected source to it:
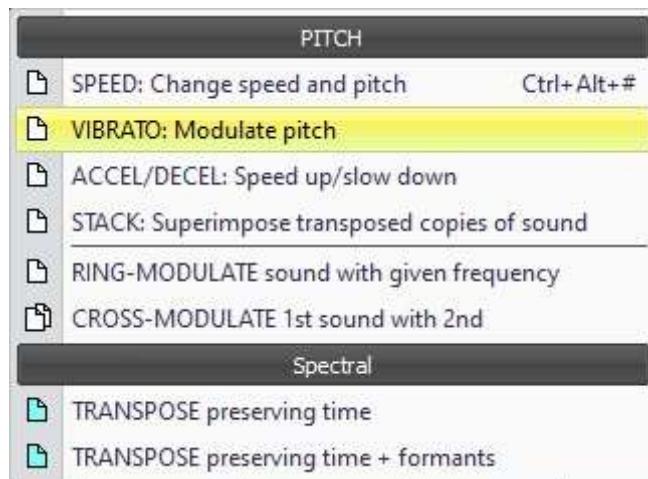

- Click on the **FILES** button, if the **Files Panel** is not currently visible.
- In the patchgrid, highlight the source cell that you want to add to the list.
- Click on the second-left button in the **Files Panel** (see above diagram).
- The file is added to the list. You will be prompted to save the altered list when you quit the program.

SELECT A PROCESS

The simplest way to select a process is via the **Process Menus**:

- **Soundfiles:** Time-Domain processing of **.wav** files.
- **Spectral:** Frequency-Domain processing of **.ana** files.
- **Edit/Mix:** Time-Domain editing and mixing processes.
- **Pitch:** Frequency-Domain extraction and processing of pitch data files (**.frq** / **.pch**).
- **Synth:** synthesis processes producing a new source file.
- **Info:** information functions.
- **Xtra:** some legacy or less reliable processes.

As an example, click on the process **VIBRATO** in the menu Soundfile | PITCH:

OTHER WAYS OF SELECTING PROCESSES

Alternative ways of selecting a CDP process:

- **From the Process Tables:** see the Process Table menu item at the top of each process type, e.g. Soundfile Menu.
- **From the Processes List:** a drop down list of favourite processes.
- **By loading a Patch:** a sequence of one or more processes.
- By dragging and dropping a **Parameter File** preset (**.prm** file) onto the page.

SETTING PARAMETERS

Most processes open the **Parameter Page**, where you set **parameter values** which control how the process operates.

You should see the source file displayed on the Parameter Page, just as on the Main Page. (You may have to operate the transport **PLAY** button for this.)

Parameter pages normally have a menu of radio buttons for choosing different **Modes** of the process. Selecting a mode displays the relevant parameters with appropriate value ranges and a default starting value. Some parameters are optional – showing a Y/N checkbox to check if you want to set a value.

Parameter values are normally set using faders and other controls on the page. Or you can type a value directly into its edit box. Many parameters can be given **random values**, within user-defined limits. For stereo and multi-channel files, you can optionally have a different **parameter set** for each channel. More importantly, you can store your own parameter sets as **Presets**.

For **VIBRATO**, there is only one mode and two parameters – RATE and WIDTH. Set both to 1.0:

If you want to preview the result of the process before rendering it, click the **PREVIEW** button at the top of the page. Previews are discussed in more detail at *****

For now, click on **RENDER** (or hit Carriage Return) to run the process and return to the Main Page. Cell A_1 is now the **Current Cell**. It should be coloured white and should read **Vibrato**. The **Information Panel** at the bottom of the page should read:

Cell: A_1   In: ~A_0.wav   Out: ~A_1.wav

PLAYING & VIEWING A (SOUND) FILE

To audition the result of **VIBRATO**, hit the Spacebar or click on the transport **PLAY button**. To pause the sound, hit the spacebar again; to stop it, hit the ESC key or click the STOP button.

From left to right: the soundfile name (marimba.wav) now has an asterisk in front of it to indicate it's been altered. The Cell is shown next (A1), followed by the file length, the number of channels and the peak level per channel.

Some things you can do with the (sound)file in the current cell:

- **Play it**, using the built-in editor/viewer. (Not all CDP file types can be played.)
- **Save it** to a permanent file (see SAVE Panel).
- **Get information** about it (Info Menu).
- **Re-edit** its parameters – double click on the cell (or **CTRL+RETURN**) to return to the parameter page (if any).
- **Replace** it by another process (**REPLACE button**).
- **Copy** it to another cell: click the COPY button under Patch Controls, then the destination cell.
- **Undo** the process (**CTRL+Z**) or Delete the cell (**DEL** key).

The output from a spectral process (**.ana**) can also be played – if the option Auto-FFT (Options Menu) is checked, a .wav file is automatically created and this is used for playback; if the option is not checked, the .ana file is played by CDP's **PVPLAY** in a console window. Pitch files (**.frq** or **.pch**) can be played too – or rather a representation of the analysed pitch. This is currently done via PVPLAY.

RE-EDITING PARAMETERS

If a result is unsuitable, double-clicking on the cell re-opens the *Parameter Page*, where the previous settings can be adjusted and re-run. Alternatively, either *UNDO* or *DELETE* will clear the cell.

Here we'll re-edit the **VIBRATO** parameters: double-click on cell A_1.

TIME-VARYING VALUES

T-V BREAKPOINT FILES

Many parameter values can be ***time-varying***. Back on the parameter page, click on the T-V checkbox for the RATE parameter:

The single value is replaced by a ***breakpoint text file*** of ***time-value*** pairs. If a default data file is available, it is displayed in the Data Edit panel, where it can be edited manually (click *SAVE CHANGES* afterwards):

By default, time-values are automatically scaled to fit the file. If you do not wish this, **uncheck** "Auto-Scale .brks" at the top of the page **before** selecting T-V. For example, in CDP's tutorial examples, datafiles should be run as supplied.
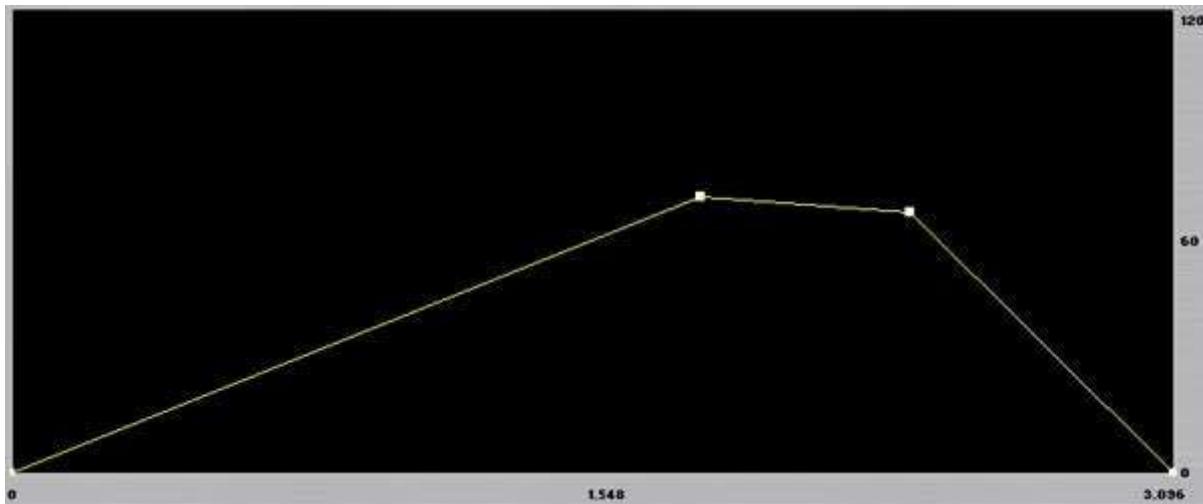

Time-varying breakpoint files have two columns: the left displays times (typically from 0 to the file-length), while the right displays the changing values (within the parameter range). There are two important conventions about breakpoint values within CDP:

1. **Values change continuously** (are interpolated linearly) from one time to the next. To keep the same value over a period, have two successive times with the same value.
2. **Times must normally increase**, if only by a tiny amount. Times are normally defined in seconds, to 6 decimal places.

GRAPH-EDIT

Breakpoint datafiles can be edited visually in Soundshaper's **GRAPH-EDIT**. If you accept the re-scaled times, click **STORE CHANGES**, so that the re-scaled file is edited, not the original. Then click the EDIT button to send the data to Graph-Edit:

Here you can click on the graph to create new edit points, pull the points around, move the X (time) or Y (value) faders, or edit values in the table. For details, see **GRAPH-EDIT**. When finished, click **OK** to return to the Parameter Page, then click **RENDER** to run the process.

SECONDARY INPUTS

Now we'll run a second process: **CROSSMOD**. (Menu: Soundfiles | Pitch | Crossmod.) This needs two inputs: the icon in the menu shows two infiles (see the **screenshot** in Select a Process above).
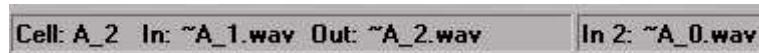
Soundshaper requires a **second infile** to be selected from the Patchgrid. (You might have to load one to a spare row before selecting the process.) For **CROSSMOD**, we'll use our source sound in cell A_0 as the second input.

With the **VIBRATO** cell highlighted, select **CROSS-MODULATE** from the Soundfiles | Pitch Menu – a red ***ADD INPUT*** panel appears. As the input is from another cell on the Patchgrid, just click on that cell (A_0). The selected input is added to the drop-down box:

Click on the **OK** button to run the process. No Parameter Page appears this time, as there are no parameters to set. Cell A_2 should now be coloured white and should read **Crossmod**. The Information Panel should read:

MORE THAN TWO INPUTS

For subsequent input files (3,4,...), where applicable: click on further cells. Alternatively, select a file via the File menu, or by double-clicking on a File List item, or by drag and drop from an open folder. This file is then copied to your **TEMP OUTFILES** folder, with the same filename. No auto-conversion is possible by this method, so it is better to load each secondary file to a source cell if possible.

OPTIONAL INPUTS

Some processes offer optional secondary infiles. In this case, the **ADD INPUT** panel is entitled **OPTIONAL INPUTS**.
If you don't want a secondary input, click **OK** without selecting one.

AUTO-CONVERSION

Next, we'll apply the spectral process **ACCUMULATE** (CDP name: **SUPERACCU**). This sustains the energy in spectral bands. **Select Spectral | Emphasize | Accumulate.**

The icons in this menu are coloured aqua, meaning that a spectral file, rather than a soundfile, is the native CDP input. However, Soundshaper ***auto-converts*** the main file types behind the scenes, using currently set conversion values. The CDP **PVOC** defaults are pre-set. (Soundshaper also auto-converts secondary files that are not of the correct CDP file-type, wherever possible.)

On the Parameter page for **ACCUMULATE**, select Mode 1 (Sustain), set DECAY to 0.5 and click **RENDER** to run it. Depending on the length of your source, the output length will probably be boosted by about 6 times. (Expect to wait a bit if this will be over 30".) SUPERACCU preserves the trail (decay), which can be very long and fairly inaudible.

CUT AT LOOP POINT

- Back on the Main Page, play the result and stop it when it appears barely audible.
- Right click over the same point to set loop-end to this point.
- Check that loop-start is at the start of the file, otherwise drag it to the start.
- To the right of the sound display, select the radio button under PROCESS: At Loop Points
- Click the CUT button below these radio buttons (scissors icon).

The **CUT** output appears in cell A_4.

SAVE FILE / SAVE TO POOL

You may wish to **save** the final cell to a permanent file. (This is already a soundfile, so doesn't need to be converted to one.)

- Click on the cell to be saved, if not highlighted already.
- Click on **SAVE FILE** to open the **SAVE PANEL**, if not already open:

- As necessary, click on the leftmost **folder** icon, to select the folder to save to. If you have the option **Use Project Folder** checked (in either the Main or the Parameter Page), the **SAVE PANEL** will open in your current Project Folder, as selected on the Settings Page (OPTIONS | SETTINGS). Otherwise it opens in the last-used folder.
- The filename "marimba_4.wav" is suggested automatically. Change this to "marimbaccu.wav" and click on the panel's **SAVE** button.
- If you wish, click the button 3rd from the left to save the file to the File List (Pool).

Alternatively, there is a **SAVE** button (floppy-disk icon) in the toolbar at the top of the page.

SAVE/LOAD PATCH
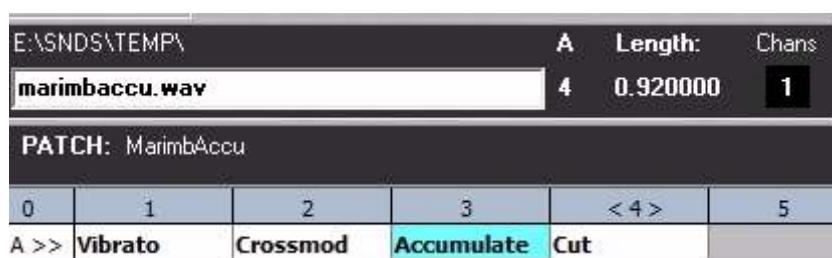
Saving a patch saves the entire sequence in a form that can be re-run, optionally with a different source, and re-edited.

SAVE PATCH

Before saving, decide if you want to save the (copied) source file (~A_0.wav) with the patch files (usually the best option). If you don't, and the source is still in the same folder when you re-load the patch, Soundshaper will use it anyway. Otherwise, you will be prompted to provide a source.

To save the entire sequence as a patch:

- Under **PATCH CONTROLS**, click the **SAVE** button.
- The default folder is **[User-Folder]\Patches**. You can change this in **SETTINGS**.
- Enter a filename (e.g. **MarimbAccu.ssp**), then an optional description of the patch.

LOAD PATCH

- (If you like, under Patch Controls, click the patch **CLEAR** button, though this is not strictly necessary.)
- Click the patch **LOAD** button.
- In the folder where you have stored the patch, select the main Patch File (e.g. **MarimbAccu.ssp**), **not** the associated sub-folder of the same name.
- The patch is loaded and run with the saved source;
- if no source was saved, you may be prompted to provide one and then click the patch **RUN button**.

RUN PATCH WITH NEW SOURCE

- Click on the source cell to be replaced, to highlight it.
- Select a soundfile (via the File menu, File List or drag and drop). This replaces the source.
- Under Patch Controls, click the patch **RUN** button, with "Whole Patch" checked – it is checked by default.