RX5 TUTORIAL

1. Open file or drag into the program
	1. Has different tabs for multiple files

**Display**

1. **Spectogram** (background image, not the waveform)
	1. *Time* on x axis
	2. *Frequency* on y axis
	3. Amplitude (at a frequency) as *brightness*

NB: By right-clicking on the spectrogram, and going to *View Spectogram Settings,* you can change the color-display (e.g., multicolor1 or 2; or type; e.g., to adaptively-sparse) on the spectrogram to show different aspects of the waveform, which can be good for visually isolating different problem-areas. STFT setting is better for time-precision in visual display; Adaptively Sparse setting is better for pinpointing frequency issues.

1. **Waveform**
2. Slider on bottom left to control how much of either can be seen
3. Navigation bar (middle, right below spectrogram)
	1. Zoom in/out (also COMMAND +/-)
	2. Magnifying glass in square: zooms in on selection area
	3. Magnifying glass with opposing areas: zoom out to entire file
	4. ALT + empty zoom: zoom in/out on a specific point
4. Waveform overview: Over spectogram, shows the whole spectrogram and which section is being highlighted currently

**PLAY CONTROLS**

TO NOTE: There are two play buttons (right-facing triangles):

Left: for file play;

Right: for playing *only a selected frequency swatch of the file.*

**Ways to move through the file:**

1. drag on the timeline below spectrogram
2. in the waveform overview
3. grab hand tool
4. mouse scroll wheel over time axis values
5. Ways to zoom in/out of y-axis on spectrogram *or* waveform (i.e., to zoom in/out on frequency)
	1. Slider to the right of the spectrogram, selected for either waveform or spectogram
	2. Mouse scroll wheel:
		1. Mouse scroll *over* the Y-axis values
		2. ALT + mouse scroll for spectrogram;

**TIP:**  You can change what scale the frequencies are shown in the spectrogram by right clicking on the frequency values on the Y-axis on the right-hand of the spectrogram. E.g., For dealing with low-frequencies, it is often better to view as *Extended Log*

**Selecting time slices, frequency slices**

1. Vertical rectangle tool – selects time slice (x-axis) *across the entire frequency spectrum* (y-axis)
2. Square tool – selects specific frequency slices (x-axis) *and* related time slices (y-axis), i.e., to select just a specific set of frequencies to focus on.
3. Horizontal rectangle tool – selects frequency slices (y-axis) *across the entire file by time* (x-axis)
4. Lasso tool – allows you to select free-form sections of time/frequency
5. Paint brush tool – allows to paint free-hand selections
	1. To adjust size of the brush (pixel size)
		1. Click and hold on paint brush icon:
		2. COMMAND KEY and mouse scroll wheel
6. Magic wand tool – can automatically select *harmonic* material of some time/frequency slice. Will select the most prominent sound in the area clicked on.
	* 1. Clicking on the already selected area will show all the harmonics of that sound
		2. Clicking on the harmonic selection tool (to the right of the magic wand) allows for single harmonics above a selection to be selected

*For all of the above tools:*

* Hold down SHIFT and clicking – will allow one to *expand* an existing selection
* Holding down ALT and clicking – will allow one to *subtract* from an existing selection

\*\*\* Once selected – one can modify *only that selected areas* with any of the modules on the right (de-noise, de-clip, etc.)

**Clip Gain**

You can alter the amplitude of various sections of the file by using *clip gain.* Right-click on the spectrogram/waveform and click on *View Clip Gain.* You can then click on the mid-point between the Left and Right channels (upper and lower waveform in a stereo file) to add points to raise or lower the gain.

**Modules**

Declick

Declip

Dehum

Denoise –

* Dialogue vs. spectral function.
	+ Dialogue – preset for detecting voice
	+ Spectral function – for more aggressive noise reduction.
* Threshold: at what threshold does the de-noise kick in
	+ Can click on the “chain link” icon at the bottom of the slider to split into noisy/tonal levels for further control.
* Reduction: how much is reduction is applied (beyond the threshold)
	+ Can click on the “chain link” icon at the bottom of the slider to split into noisy/tonal levels for further control.
* “Learn” will extrapolate the noise profile from a selected part of the clip.
	+ For more accurate noise profile, you can use the lasso tool, etc. to select more than one part of the file that only has noise.
* Artifact control - If you hear a musical noise artifact (the watery digital "space monkey" artifact common to FFT-based denoisers), move the slider more to the right (away from Musical noise). If you hear a gating artifact (like pumping or surges of background noise), move the slider more to the left (away from Gating).
* Reduction curve – can use this function to manually specify more or less reduction by frequency. Most useful for artifact around 5K (where consonants, sibilants are in speech).

Tip1 : When getting the denoiser to “learn” the noise profile, only select areas that *lack* important audio information (e.g., sections where there is no talk and only background noise).

Tip2: Multiple passes at lower thresholds work better than single passes at a high threshold.

Tip3: Can use the “output noise only” function to listen to *only* the noise. Can use this to detect where in the noise wanted sound (e.g., talk) is still present so as to adjust the noise-reduction settings (i.e., so as not to reduce wanted sound), in particular, the *threshold.*

Spectral repair

* “When used with a time/frequency, lasso, brush, or wand selection, it can be used to remove or attenuate—depending on the selected mode—unwanted sounds, such as squeaky chairs, coughs, wheezes, whistles, dropped objects, clattering dishes, mobile phones ringing, door slams, squeaky wheels, dog barks, jingling change, etc.”
* In *replace* mode, it will replace the audio with the sounds around it (e.g., to get rid of whistles or other impeding sounds); in *attenuate mode* matches “damaged” section with the surrounding content

Deverb –

Can use to reduce unwanted reverberation in the audio-file.

* Reduction: controls how much of the reverberation is reduced.
* Enhance Dry Signal: to enhance the dry signal.

TIP: When using “learn” make sure to select the entire file that is of interest.

Module Chain – So as to organize multiple modules to run at once (to save time)

**Instant Process Tool** (next to hand grab)

* Rather than select an area and then select a module to process it, you can use the *instant process tool.* Click on the instant process tool, click on a selection tool type (e.g., lasso, magic wand), and then click on the particular area.
* This allows one to “paint away” problems using any of the modules (selected to the right of the tool) directly on the spectrogram.

**Undo**

* On the bottom right is a list of undo steps. These can be used to undo previous alteration. To undo:
	+ Click on the previous state (in the list in bottom right)
	+ COMMAND Z

**Save RX Document** (under File tab [in top-left]:

* allows you to save an RX Document which preserves the entire undo history, so that one can revert back to previous stages of alteration.

**To export the altered audio file:**

* Click on Export (under File tab [in top-left])