

Ardour: Region List redesign

What are the problems of the Region list?

Incurs a performance penalty when copy/pasting. (note: improved by las)

It's far too long. A typical session will have a long list of regions, recognizable only by number. "Audio 4.1.1"

Most entries are meta-entries. Given one visible region: there are 2 entries (the visible region and its whole-file equivalent) split the region and delete the left side. There are now 4 entries: the original, the whole-file, the left side, and the right side. Only one of which is visible/used.

Its purpose is not clear. Is it a clip-organizer? Or a reverse-interrogation utility for session data? Or ... ???

What were the **original** goals of the Region list?

- Basically: to recreate the similar tool that was available in PT, at the time. (according to Paul)
- To allow a repository of files and "clips" which the user could import to, drag from, and otherwise organize
- Allow a place to "bounce" to, where you could then re-use in other parts of the session (realistically, it is nearly impossible to find this region once it is bounced, in any session of typical complexity ... especially since they are hierarchically organized under their source file, which may be unrelated to the track they are on)
-?

Over time, the region list was expanded to display the position, end, sync time, length, and fade length of every instantiated region in the session. And also the "Lock, Glued, Muted, and Opaque" flag. I don't know if this was in response to real use-cases, or if it was an attempt to give the region list more utility.

It is hard to justify the utility of the position, end, length, fade, and sync values. Maybe if they were sortable by "start" time, then this could serve some purpose in post-production (let me see all the files, visible or not, that start around 1:00:00). But since the regions are organized under the "whole file" (typically, but not necessarily, "source file") that they belong to, you can't really re-order them in any useful way. The list doesn't allow bulk operations (like: set all these region's fade time to 50ms)

"Lock, Glued, Muted, and Opaque" are possibly of some utility. For example: you might globally mute all instances of a "take". If (a) you could recognize takes, and (b) the list allowed you to manipulate more than one region at a time. "regions" themselves don't have a take-id; Sources do. So the list would be very redundant in this column.

In some tasks (voiceover, books-on-tape) it is nice to rename regions ("four score and seven years ago..."). This is a nice feature of the region list, but I think it is arguable that most people will do this from the editor canvas, not the region list.

This suggests that we need a **Source** list instead of, or in addition to, the region list. It will scale much better. (hundreds of files, instead of thousands of regions)

What might the **Source** list be useful for?

- **Organizing “sources” (samples/files)**: “kick drum” “explosion” (one per sound, not one per *-instance-* of the sound) ... these could either be imported sources, or could be bounced source files.
- **Take management**: Every source has a take ID. if you could tell which regions were recorded at the same time, you could perhaps recover an old take elegantly. Or mute all instances of a “take”, so the prior take(lower layer) is heard. Or select all prior takes, and “delete” them, so they don’t interfere with editing. (the underlying layers can be a real pain)
- **Selection management**:
 - Selecting a *region* in the editor canvas should highlight the *source* that it is part of. This would help you determine which take the region is from, for example, and sort the list to show all other sources from that take.
 - Clicking on a *Source* in the source-list would select all the *regions* in the editor canvas (and *region list*) that are part of that source.
 - ... and now you can use region operations to adjust their mute/opaque/gain properties
- **Properties**:
 - Click on a column header to sort the list by a source’s properties: takeID, file path, length(?)
 - Order by take ID: would show you all the takes associated with your currently selected source
 - Order by PATH: you could see where the files are located on disk, and which samples came from which library (if applicable)
 - Order by “natural position” --- see all the times I tried to record a bass part in the chorus(?).
 - **Operations** on a source (TODO):
 - Bring a source into the session (copy from an external folder into the session folder)
 - generate/reset transients
 - Delete the source file (probably only allowed if the use-count is 0)
 - Rename the source file (potentially useful as some kind of session interchange/stem export)
 - Recover the source to its original track, position, and length. Example use-case: thorough some accident or calamity, I have lost yesterday’s guitar solo. Find the recordings made around noon yesterday, and put them on the timeline.

Users care about: what file does this region belong to? What are all the missing files and how do I start to fix them? What are all the paths that are used by the regions in this session? which other files were recorded at the same time? (i.e. take management)

QUESTION:

Many DAWs have a “clip browser” which allows you to add paths (folders) to a panel; and then navigate those source folders to import samples & midi regions. Is the Source list just a subcategory of the browser? Or

is this a completely different widget/list? I think the latter. The browser is for outside folders, and the Source list is for sources that are actually utilized in this session.

SO: we might end up with 3 new tab widgets: Browser (for importing files from sample/loop libraries), Sources (to show the files & takes in this session), and Selected Regions (showing a list of all selected regions, and their properties)

Brainstorming session about a “clip list”

Consider the 3 kinds of clips: "long-form {audio or midi}", "samples {audio}", and "loops {audio or midi}"
And the 3 states of each “used on the timeline”, “referenced by the session, but not currently on the timeline”, and “only a file on disk, maybe with metadata”

See: [Ardour Clip List](#)

Brainstorming session about an “Asset list”

(side note: maybe flip the terminology: an “asset” is an external file, whereas a “clip” is an ardour region)

Rg: Asset is the old region-list, a subset of a Source in the session (with fade, start-offset, position). It can also be a MIDI-pattern or Automation-region/asset that is currently not on the timeline. Or a subset of a linked midi-region (pattern) to be re-used in many different places. An Asset can be used to “generate” regions. As opposed to “clips” it is a **1st class citizen, saved with the session** and also session-specific.

OR: “Assets” are just external files (Accessible in the Clip List), but with ardour-specific metadata (region fades, mute/transparent, original position, etc). A special-cased “asset” path is provided inside each session, which represents the session-specific clips (assets) that you might use. Another default Asset path might point to the user’s preferences folder; and perhaps a final Asset path would be included in the binary bundle (with some generic MIDI beats/metronomes and automation shapes (square, sine, etc))

Side Note: Apple solved this problem by creating their own external asset file format: CAF. CAF is a RIFF file (afaict) that includes metadata (looping, bpm, key, etc) , midi data, and audio data (which might be compressed). We should consider this as well.

https://developer.apple.com/library/archive/documentation/MusicAudio/Reference/CAFSpec/CAF_overview/CAF_overview.html

SESSION OPTIMIZATION / CLEANUP OPPORTUNITIES

Current behavior: If you delete a region in the timeline, it still remains in the session file. If you “split” a region, then the original region remains in the session file. Over time, this causes the session file to grow significantly larger and slower. (especially with the current RegionList gtk treeview)

What is the benefit of these old regions in the list? Maybe to recover a prior take, before your edits (?) ... but this is impractical right now, because there is little indication (capture time, original TC location) that would allow you to determine this. (the Source List, on the other hand, does provide this info, and since it is one source per file, it is much less populated)

Aside from “session->cleanup”, The only way to remove regions from the session file (to shrink the file) is for the user to initiate a “remove unused” from the context-menu of the region sidebar. Users would rarely do this. Maybe it is better if the unused regions were deleted more regularly.

Similarly, sources are never removed from the session file. The only way to remove a source permanently is to “remove last capture”. This deletes both the file, and the Source. That’s cool, but I very often have 2 complaints with this: “I *think* I can throw away this take, but what if I’m wrong??? Better keep it” ... and then later “damn, I wish I had deleted that when I recorded it”

The Source list does not grow as quickly as the Region list. So I think it is OK if the Sources remain in the session.

Proposed Redesign (branch: [bens-source-list-wip](#))

- 1) A new Source list will represent all the Sources in the session. You bounce to the “Source List”, not the Region list. Sources are real files on disk. Sources don’t yet have a “start” time because they aren’t on the timeline.
- 2) The Regions list is intended for “regions that appear on the timeline”, and their properties like position, length, muted, etc. (which are only relevant if they are on the timeline). You can sort regions by Start Time; Length
- 3) Add “tags” to regions. With actions like “tag last capture” or “tag selected regions”. Then you can sort (or search) by tags. This makes it easier to keep up with your good takes.
- 4) Selections in the Region list can be 1->1 with the Canvas. You can select in the region list, and then right-click and perform any region operation (like: toggle Mute status)
- 5) Regions that aren’t on the timeline aren’t necessary to keep in the session. They grow the session unnecessarily. Be more aggressive about removing regions. On session “load”, as the last step, remove any regions that don’t appear in the session playlists.
- 6) However: Utilize playlists more actively: more actions should create a new playlist. This provides a layer of “undo” (let’s revert to the playlist to before I consolidated that vocal take).
- 7) Users should be allowed to manually delete Sources. Consider the case of recording an overdub. Currently, if you want to delete a bad pass, you only have one chance: immediately during or after the take. We should allow users to remove Sources later.
 - a) We will allow users to delete a Source from the snapshot (and therefore the list) So the user can visually eliminate the old undesired takes.
 - b) You can’t “really” delete the files because it might be used in other snapshots.
 - c) **Actual disk savings won’t happen until Cleanup; See: [Session->Cleanup Redesign](#)**
- 8) What happens if a Source file has been deleted?
 - a) In prior implementation, you’d get a bitter complaint at session startup, and you’ll be prompted to add a new Path to the session locations, so the file might be re-linked.
 - b) Now with the Source list, there is a “path” next to each Source, so the user can see where the file lives on disk.
 - i) Idea: right-click on the Source(s), and choose “copy into session” (more fine-grained control than Session->Cleanup->Bring external files...)
 - ii) Idea: keep a “last known good path” (string value) in the Source object. So the user can recover some clue where the file was originally.
 - iii) Idea: Highlight the path in red if the file no longer exists at that location.
 - iv) Idea: Right-click on the Source(s) and choose “Browse for new location”

- 9) In the session settings -> Locations, one can add locations to the path. If a new location is added to the path, would the files in that path be automatically added to the Source list ? Or is the source list only for files that are imported or recorded ? The original reason for adding locations to the Path was to re-attach lost files, ie files were moved from their original location and needed to be 're-discovered'. (has a knock on to Ardour's general ability to deal with multiple Source File locations, either files added, or the need to record to different locations from within the same session) -> ties in with "Clip List"

Region List

Sort by start time...

Region	Tags	Start	Length	L	G	M	O
Audio-1.1	Good	00:00:07:20	00:00:02:08				
Audio-2.1	bad	00:00:05:17	00:00:01:23				
Audio-3.1		00:00:05:26	00:00:00:21				
Audio-4.1	test	00:00:06:18	00:00:01:23				
Audio-5.1	bbit	00:00:07:15	00:00:01:27				
Audio-6.1		00:00:09:12	00:00:00:28				

Selecting a Region will select its associated regions in the canvas, helping you select regions with the same tag or start position.

Use "Tag Last Capture" to tag a particularly good take. Sort by Tags to find good takes later.

Right-click on a region to do all the same operations you would find in the canvas regionview.

Source List

Sort by "Take ID" to find files that were recorded at the same time.

Selecting a Source will select all of its associated regions in the canvas.

Source	Take ID	Orig Pos	Path
Audio-1.wav		--	/home/harrison/Documents/
Audio-2.wav		--	/home/harrison/Documents/
Audio-3.wav	2018-10-25 14.48.25	--	/home/harrison/Documents/
Audio-4.wav	2018-10-25 15.25.25	--	/home/harrison/Documents/
Audio-5.wav	2018-10-25 15.25.52	--	/home/harrison/Documents/
Audio-6.wav	2018-10-25 16.03.10	--	/home/harrison/Documents/
Audio-7.wav		--	/home/harrison/Documents/
auditioner-1.wav		--	/home/harrison/Documents/
MIDI-1.mid		--	/home/harrison/Documents/
MIDI-2.mid		--	/home/harrison/Documents/
MIDI-3.mid		--	/home/harrison/Documents/
MIDI-5.mid		--	/home/harrison/Documents/
toBeResetfroXML-1.mid		--	/home/harrison/Documents/

Use the file's path to recognize external file locations, or to recover missing files.

TODO:

- Add some "useful" actions (TBD)
 - Right-click on a source and choose "recover this Take" (inserts the source in its original track, and original position, on top of the layer stack)
- Remove some cruft
 - Insert-region-from-region-list -> No longer a thing. Needs to become: "Insert from Source list", or, better, "Insert from Clip List"
 - Region_list_equivalent <- probably deprecated
 -
- Add ability to audition Sources or Regions from within the lists. Show a waveform with a playhead in a mini player at the bottom of the list.

WHAT DO WE LOSE?

~~"Copy To Region List" action: in the past, you could select a region and "copy to region list". This created a copy of the region (including fade, gain, etc) in the region list, which you could later reuse *even if you deleted the source region from the canvas*. This is no longer possible because the region list only shows regions that are in use by an active playlist (i.e. currently shown in the canvas)~~

- ~~• Isn't this normally just a case for "copy/paste" ?~~
- ~~• You can still do a "bounce to Source list" which is persistent, even if you delete the region~~
- ~~• If it was absolutely necessary to keep a "region" (with fades) in the region list, you could keep a pile of them in a scratch track.~~

- ~~Perhaps instead we do a "Copy to Clip List" and the Clip List has a special folder/category for "this session's region clips" (imagine: automation regions, midi loops that you want to re-use)~~
- ~~Use tags: if you like a region, tag it. You can later search for tags, and find it (even if it isn't currently on your canvas timeline)~~

Need Paul's Help:

1) ~~drag & drop doesn't work from the Source list: I hope you can help me here. I commented "Paul: TODO" where it isn't working. (fixed)~~

2) "natural position" isn't getting set for newly recorded audio files & midi sources. The code looks like it "should", but it's not. this is probably a long-standing bug that we never noticed before.

3) maybe implement "remove_selected_sources" TBD. ... this is pretty hard. session->cleanup takes a lot of steps (snapshot checking, windows file {un}locking, etc) that should be separated out, I think.

- Possible workarounds:

- Remove sources will only remove the Source from the current session (and leave the actual file cleanup until Session->Cleanup)
 - Problem here is: if you have a backup snapshot or whatever, you'll have a lot of sources that never get deleted (this is also true in current code)
- "Remove sources" will move the files to the "dead" folder.
 - The files won't really get deleted until Session->Cleanup which would verify that no other snapshot is using them (this is slightly different than current operation, but shouldn't be hard to implement)
 - Optional: by default, add the "Dead" folder to session_path, so a snapshot that uses the file would still open correctly.
 - We -still- have the problem that a source might never get deleted fully, because some snapshot has a reference to the file.
 - But the user has some control over it. They can delete unused snapshots, before doing cleanup. [OK, so just make that the operation for cleanup.](#)

4) now that Sources are visible, some of the weird behaviors have become visible. for example: midi stub sources never get removed. and some special sources like "auditioner-1" and "toBeRemovedFromXML.mid" should be handled specially.

5) multi-select of regions and sources is weird: you have to double-select the first item, then shift-select the later items. Not sure why it requires 2 clicks to start selection. (Paul...?)