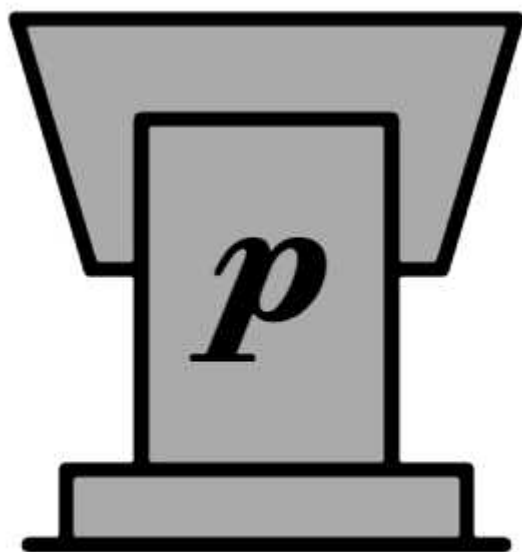
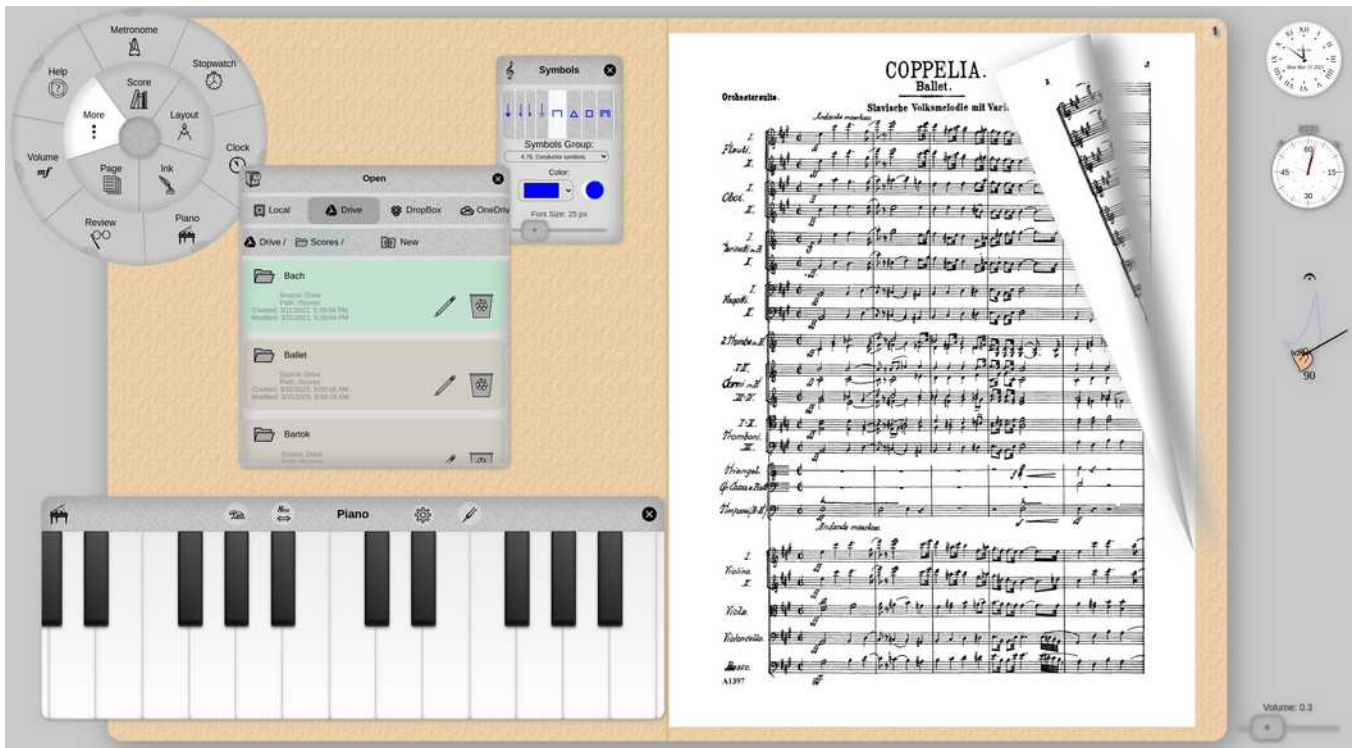


PODIUM



Guidebook v1.0

Overture



Podium is:

An e-reader for music scores.

100% browser-based: completely free, entirely open source, and totally unsupported!

No installation, no registration, no login, no file import. Just use it!

Built for Google Chrome, but runs (fingers crossed) in any modern desktop/tablet/smartphone browser.

Unique UI featuring a circular menu and multiple layouts.

Alternative to generic PDF viewers, customized for the layout and annotation of scores in PDF format.

Not a music library: works with PDF files stored locally or in the cloud.

Uses PDF annotations and embedded document metadata to store user edits.

...that runs on:

Touch screens devices: laptops, chromebooks, tablets, phones, and conventional desktops and laptops.

...with input devices:

S-Pen, Apple Pencil, USI styli, fingers and thumbs.

Mouse, track pad, computer keyboard, page flip pedals.

...and practice tools:

Metronome, with experimental animated conducting hand.

On-screen piano keyboard, with functions for assisted tuning.

Replay tool for instant replay of last 1 minute(configurable) of audio/video.

Stopwatch and clock.

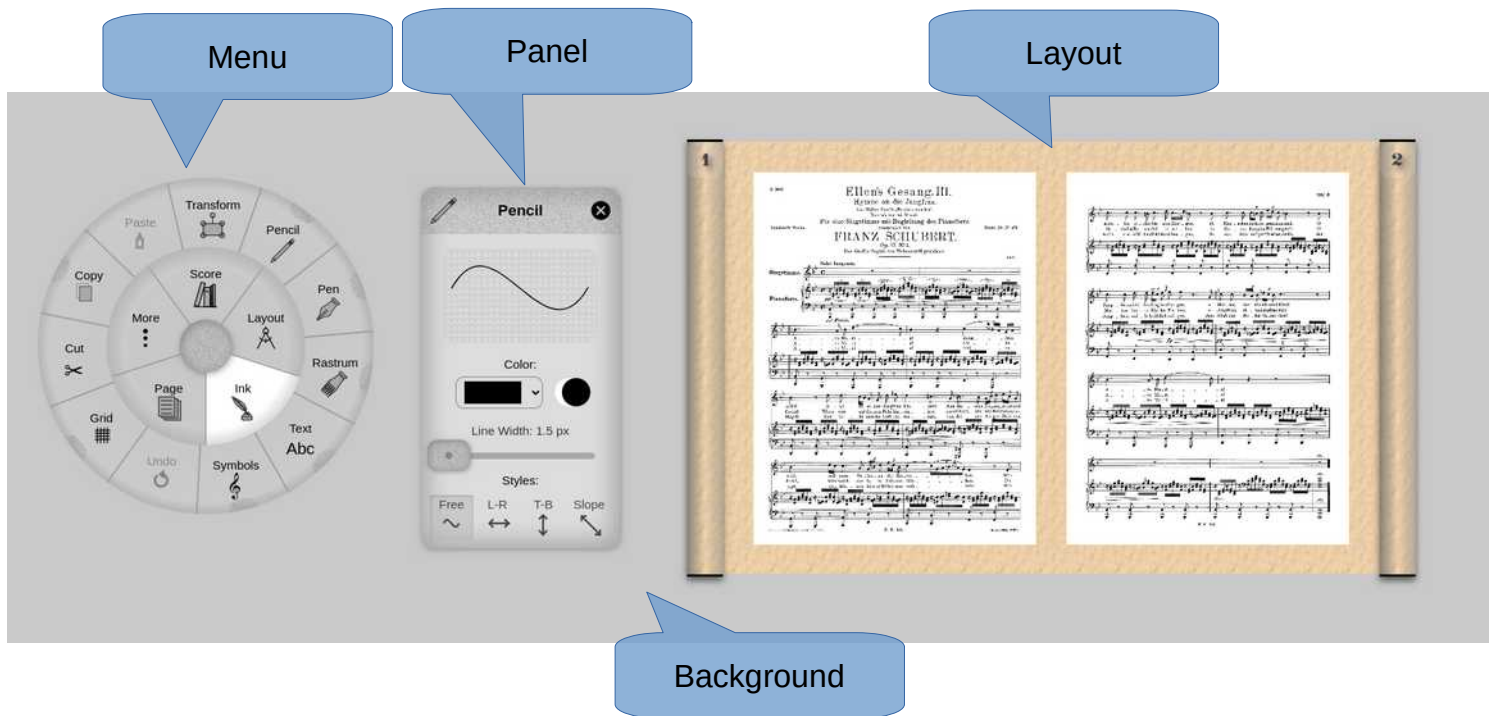
URL: studiop5.org/podium.html

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Interface Basics

Podium has four unique User Interface elements:

- Background: supports multiple navigational gestures.
- Menu: 2 level, circular array of Cells.
- Panels: 26 individual panels, each launched by dragging out from a Menu Cell.
- Layouts: 4 unique score layout styles.



Note the sandpaper-like texture in the middle circle of the Menu, in the Panel's header, and in the Panel's slider. Wherever this texture appears, it means you can touch-drag (or click-drag, for non-touch devices) to move the element. The Layout does not have such a texture: in normal usage, Layouts are usually sized and positioned automatically to maximize available screen usage. However, this does not mean you can't resize/move layouts:

In Podium, **everything** is movable and resize-able through a 2-finger pinch-zoom gesture. Additionally, 2-finger pinch-zoom on the background will *simultaneously* resize the Menu, the on-screen Layout, and all on-screen Panels. (For non-touch devices move elements by holding down the ctrl key and left-drag them with the mouse. To resize, click on the element, hold down the ctrl key, then rotate the mouse wheel.)

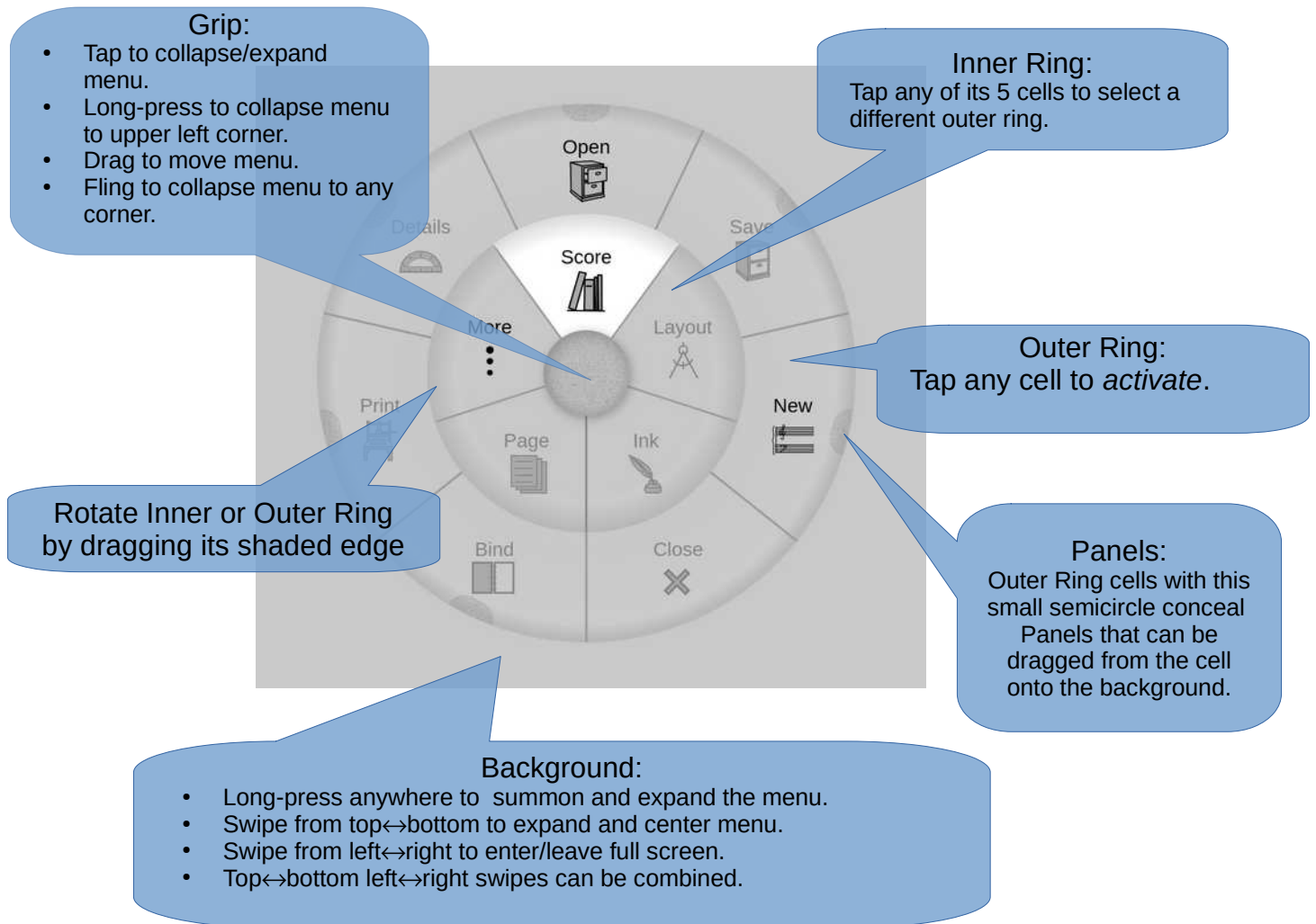
Additional gestures:

- Background:
 - Drag left→right to enter full-screen.
 - Drag right→left to exit full-screen.
 - Drag top→bottom to reset and center Menu.
 - Drag bottom→top to collapse and park Menu in upper left corner.
 - Long press anywhere to summon Menu to that location.
- Panels:
 - Open by dragging out from Menu cells.
 - Fling from Panel's header to hide.

Note: You can *close* any Panel by tapping the x close button in its header. Alternatively, you *hide* any Panel by simply flinging it from its header. For most Panels, you won't notice any difference between hiding and closing. However, Panels which actually run dynamic code, such as the More Ring's Metronome, Stopwatch, Watch, and Review Panels, will continue to running in the background when they are hidden.

Menu

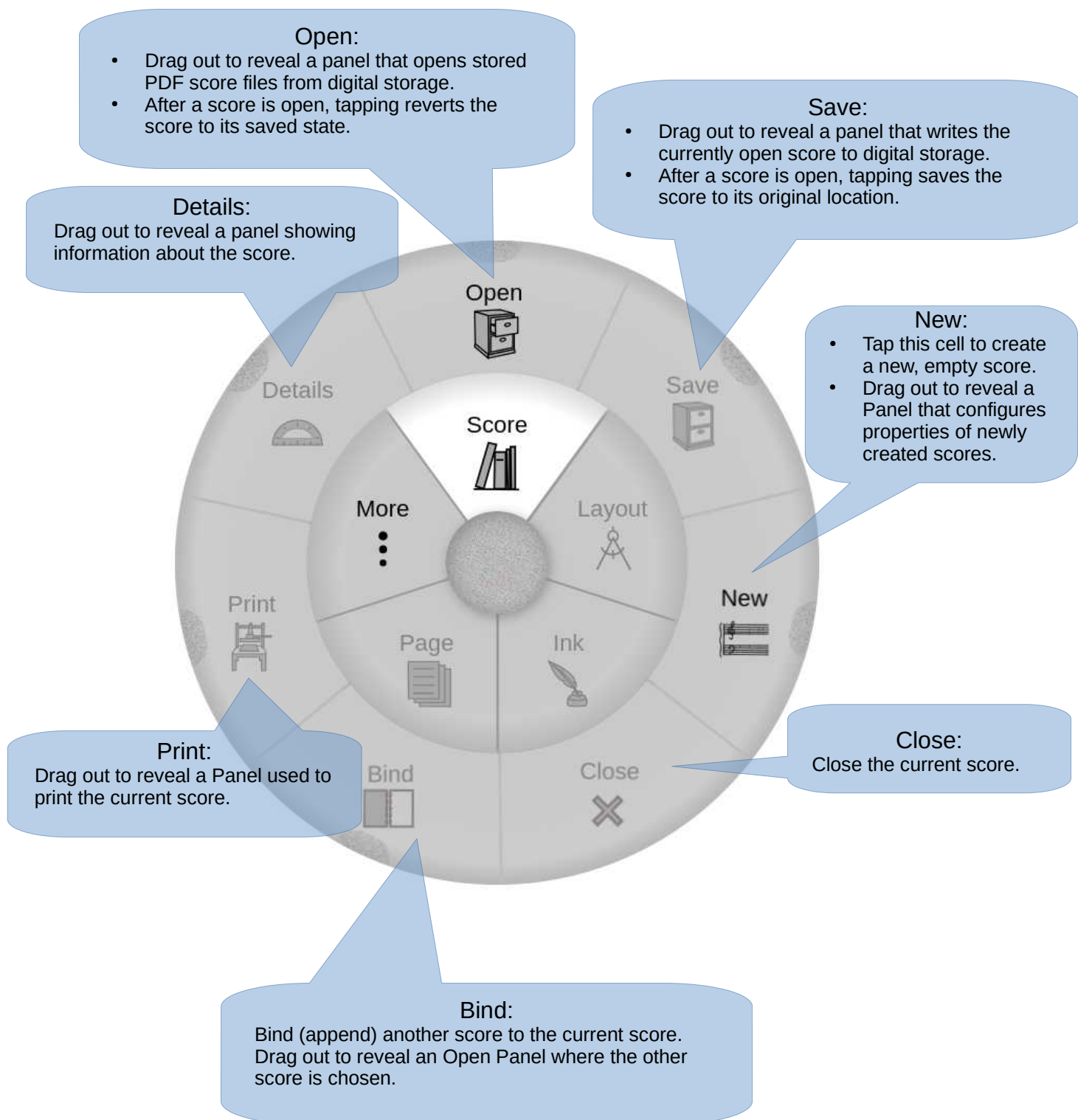
When Podium is launched, you'll see a circular menu against a gray background. The menu has several parts:



- Grip: drag to reposition the menu. Long press to collapse, hiding the menu's rings. Tap again to expand. Fling to collapse in any of the four corners.
- Inner Ring: tap any cell to select the set of cells displayed in the outer ring.
- Outer Ring: tap any cell to invoke its action.
- Panels: many outer rings cells have a small semi-circle along their edge. These cells conceal an associated panel: to reveal the panel, tap-drag out from the ring.
- Cells in both inner and outer rings are grayed-out when unavailable. When Podium is launched, only the Open and New cells of the Score ring are available.
- Both Inner and Outer Rings can be rotated by dragging in a circular motion from the edge of any cell.
- To resize the panel on touch-capable devices, use two fingers to pinch-zoom. While pinch-zooming, you can also reposition the panel.
- To resize or move the panel using a mouse, hold down the control key and turn the mouse wheel.

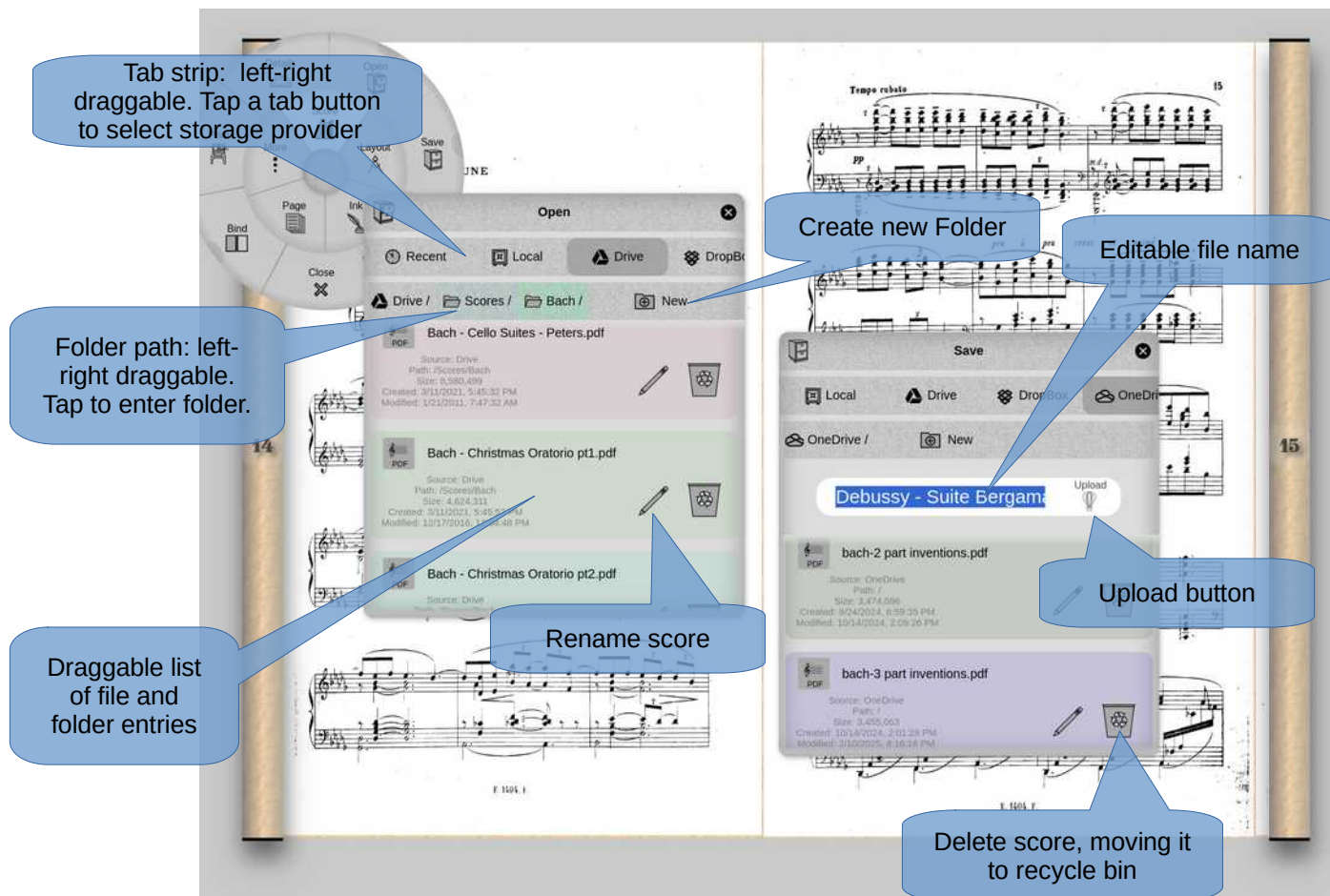
Score Ring

The Score Ring manages pdf scores. Most of its cells will be grayed out until a score is Opened, or until a New, empty score is created. This diagram introduces each cell's action. See the following pages for more details.



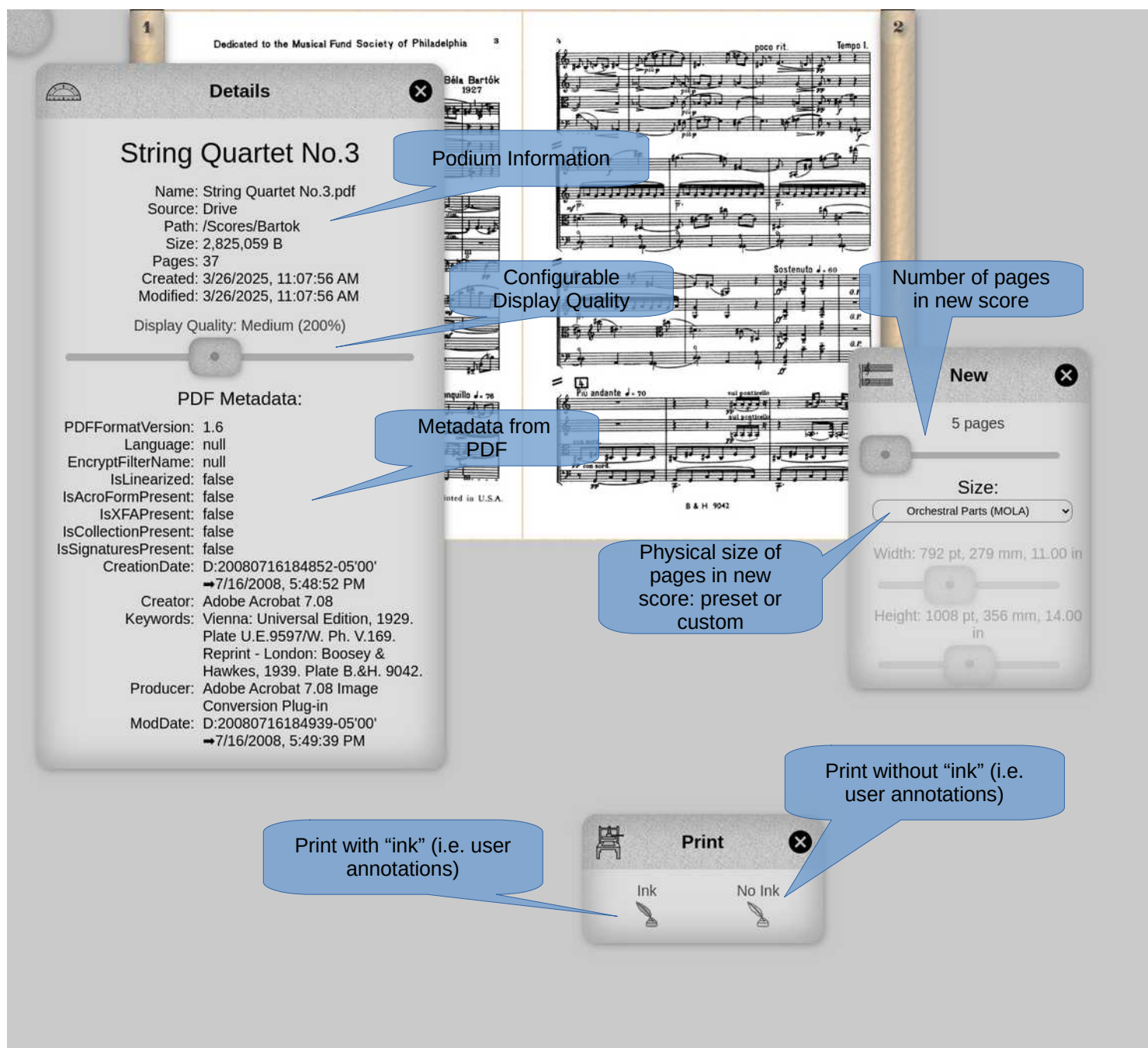
Score Ring: Open and Save Panels

Open and save PDF score files.



- In addition to locally attached storage, Podium integrates the cloud storage services of Google Drive, DropBox, and Microsoft OneDrive. Although these services require accounts, they all offer free subscription tiers.
- In either panel, tap any tab on the tab strip to open a service. Drag the strip left↔right to access other tabs.
- You'll occasionally be prompted to authenticate, especially when first opening a score from a cloud service.
- Each panel displays a scrolling list of PDF file and folder entries. Drag or fling the list up/down to scroll the contents. The list is alphabetical A-Z, with directories grouped after files.
- Tap a folder entry to repopulate the list with that folder's contents. Below the tab strip is a second "folder path" strip showing the current folder path. Tap a folder name to load the corresponding folder. Tap New to create a new folder.
- Tap a PDF score file in the Open Panel to download and display that score.
- The Save Panel has a widget for editing the file name and an Upload button. Tap the Upload button to save the current score, with the given name, to the selected folder.
- Each entry in the file/folder list has icons for renaming or deleting. There is no built-in copy/paste functionality: instead, open the file, save it to the desired location, then delete the original.
- Browser security provides very limited access to local files. The Local tab simply hands off control to device's built-in file manager widget. Unfortunately, it's impossible to pre-populate this widget.
- The Recent tab provides access to the 20 last visited PDF score files. This list is stored in the browser's local storage. This tab will show unique contents for each device and browser.
- The Menu's Open and Save cells are tap-able. With a score open, tapping the Open cell reloads the current file (i.e. "revert to saved"). Tapping the Close cell saves the current file, bypassing the Save panel.

Score Ring: New, Print, and Details Panels



Details Panel:

- Metadata created by podium.
- Configurable display quality: higher quality uses more memory.
- Metadata from original PDF file, if any.

New Panel:

- Determines how the New Cell creates new, empty scores:
 - Initial number of pages in score (add/remove pages later with the Page Ring)
 - Physical size of each page: choose from presets, or create a custom size

Print Panel: In Podium, user-created annotations are called "Ink".

- Ink: print with user-created annotations
- No Ink: print without user-created annotations

Clicking on either of these icons opens the browser's built-in print panel in a new browser tab.

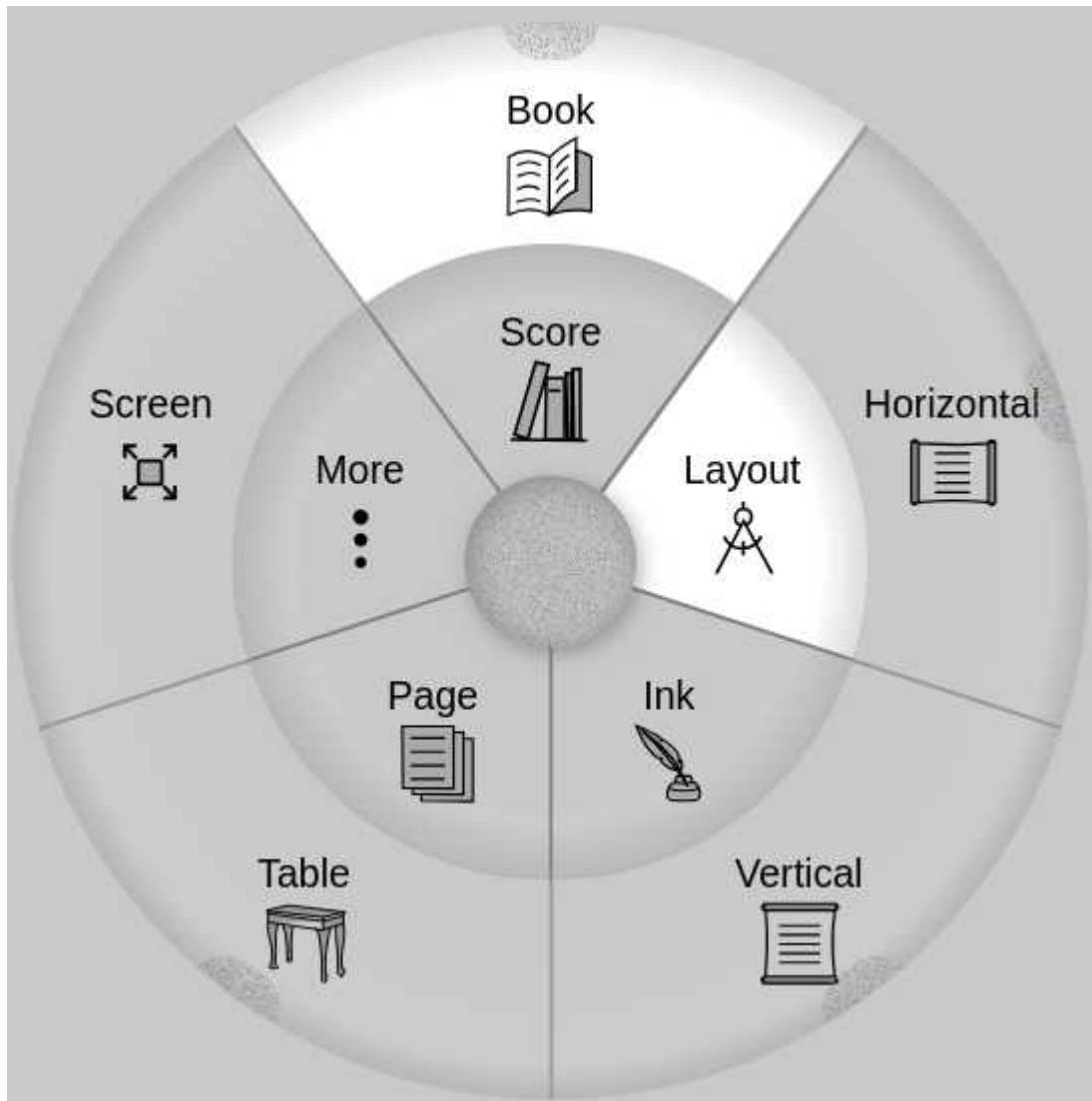
Layout Ring

Podium implements 4 layout schemes:

- Book: models a physical book with animated page flipping
- Horizontal: continuous horizontal scrolling
- Vertical: continuous vertical scrolling
- Table: all pages visible at once in a grid of thumbnails

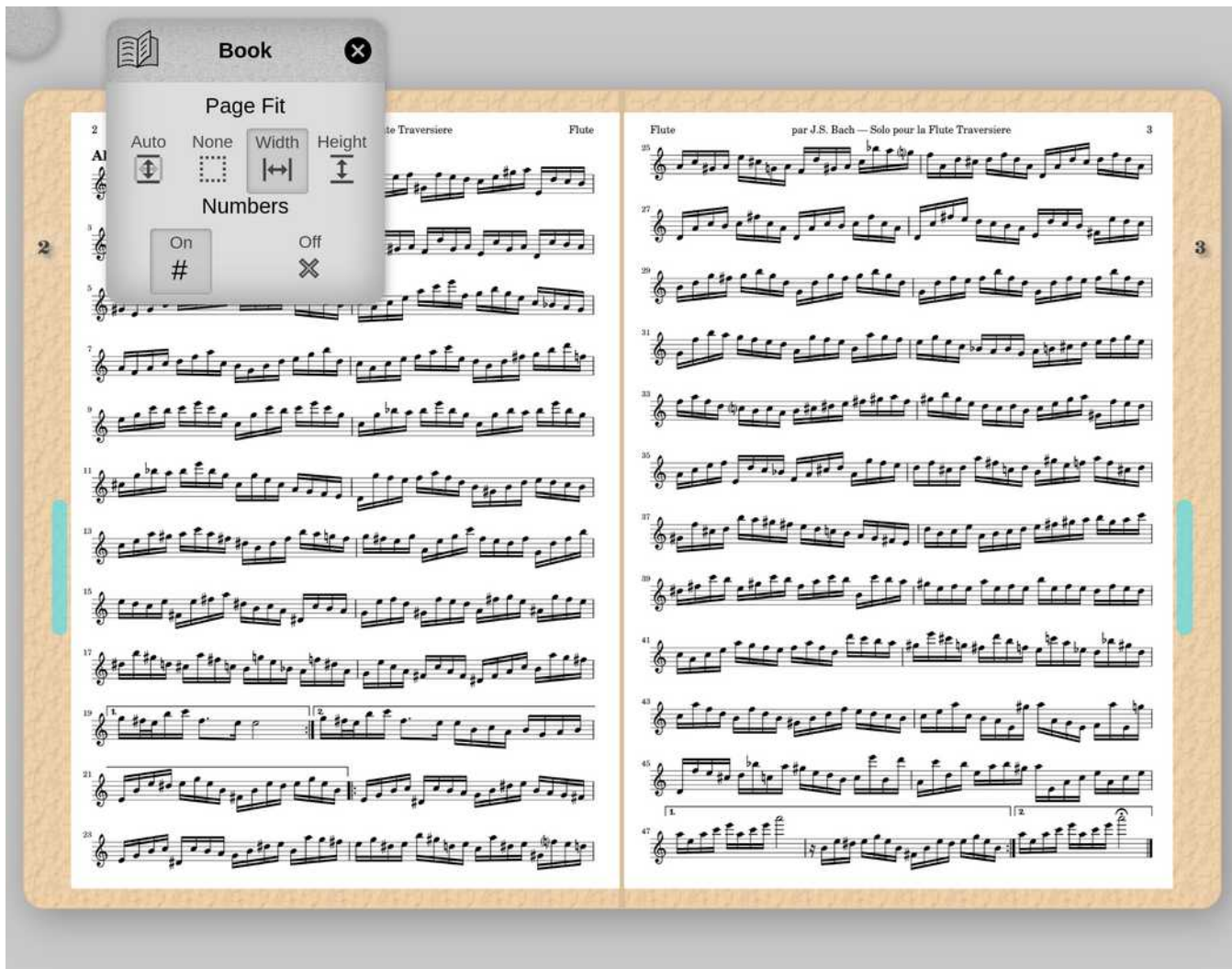
The Screen cell toggles full screen mode. You can also toggle full screen by swiping left right on the background.

Scores open with a default layout—the last used layout used on the current browser/platform or, if none, Book. The layout can be changed any time by tapping the desired cell. Whenever a score is saved, its last layout is stored as metadata in the PDF file.



Layout Ring: Book

Simulate a physical book: flip pages by dragging or flinging.

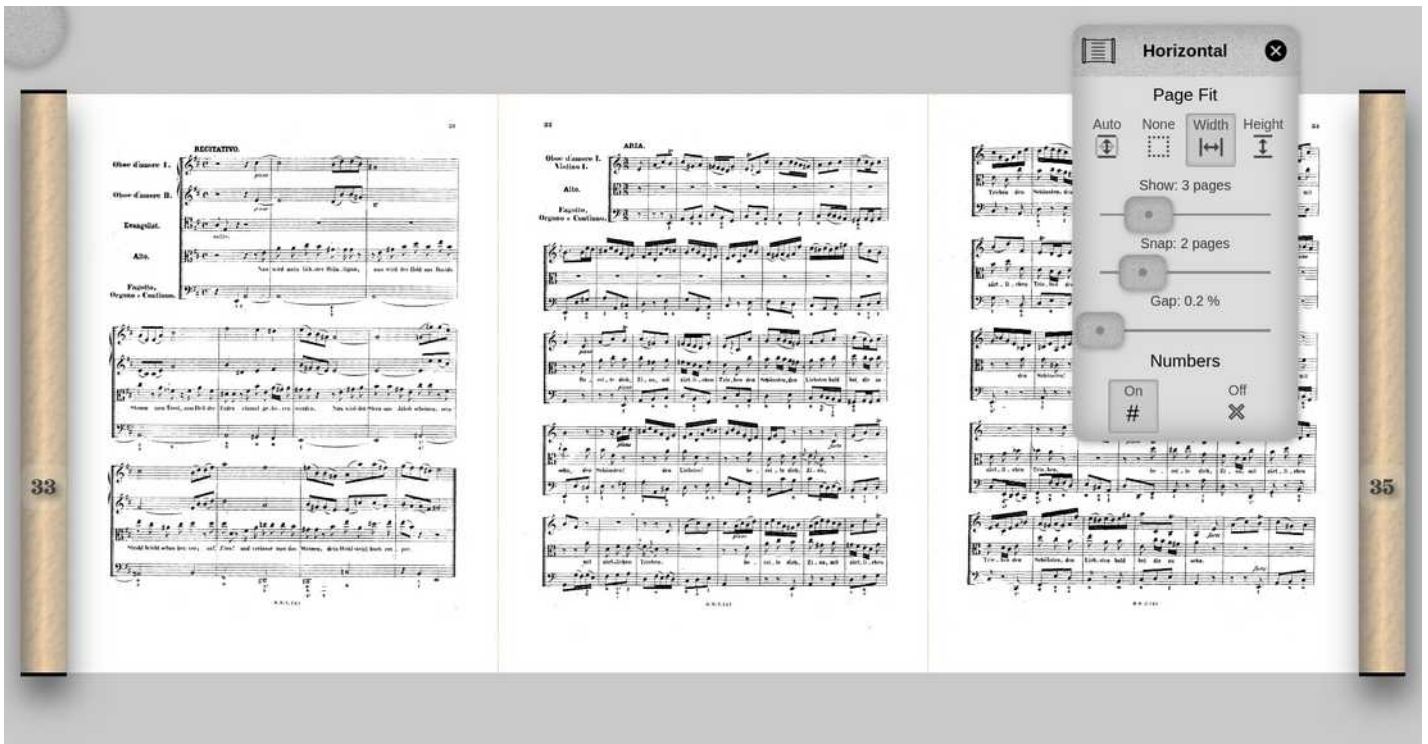


- Turn pages by flinging (i.e. touch, drag, release, all in one quick motion), or by more deliberate dragging. When dragging, if you release without dragging *past* the central spine, the dragged page will flop back to its original position.
- The Book Panel's buttons determine the score's initial sizing:
 - None: sized as indicated in pdf file. Technically, podium maps pdf "points" 1:1 with "CSS pixels". With this option, the score might not fit entirely on screen.
 - Width: sized to fit the width of the screen.
 - Height: sized to fit the height of the screen.
 - Auto: picks between Width or Height such that the entire score is on screen.
- After initial layout, pinch-zoom the score to resize/move as desired.
- Page numbers can be turned on or off in the Book panel. Current page numbers are shown at the left and right sides of the layout: drag the page number to quickly flip to other pages.
- Long-press on a page number to set a bookmark. Bookmarks appear as colored tabs on the book jacket. Press on any bookmark to jump there. Long-press on any bookmark to remove it.

Note: physical books must have an even number of pages, as each page has 2 sides. If the PDF score file contains an odd-number of pages, the layout acts as if the last page is "glued" to the back inside cover of the book, and it can't be flipped.

Layout Ring: Horizontal

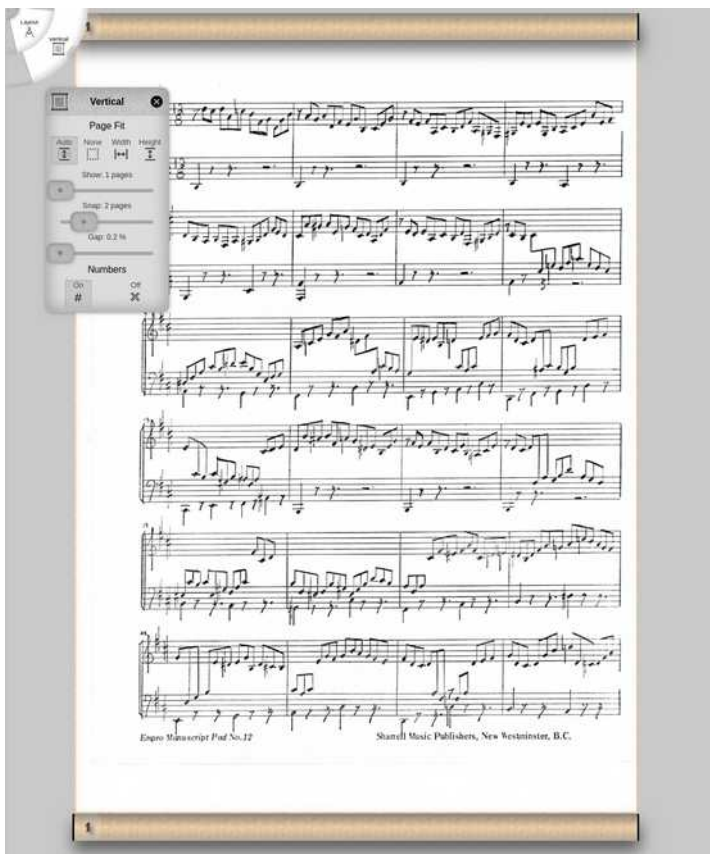
Display the score as a continuous, horizontally-scrollable flow of pages.



- The Horizontal panel's *Fit* radio buttons determine the layout's initial size:
 - None: sized as indicated in pdf file. Technically, podium maps pdf "points" 1:1 with "CSS pixels". With this option, the score might or might not fit entirely on screen.
 - Width: sized to fit the width of the screen.
 - Height: sized to fit the height of the screen.
 - Auto: picks between Width or Height such that the entire score is on screen.
- After initial layout, pinch-zoom the score to resize/move as desired.
- The panel's *Show*: slider determines how many pages are visible at a time (from 1-8)
- The panel's *Gap* slider determines how much space to leave around each page, as a percentage of the page's width.
- Scroll pages by dragging or flinging. The panel's *Snap*: slider determines how many pages the scroll advances when a page is dragged or flung, ensuring that after a scroll, the leftmost and rightmost pages align with the left and right scrollers.
- Move the *Snap*: slider all the way to the left to completely disable page snapping.
- Page numbers can be turned on or off in the panel. Current page numbers are shown at the left and right sides of the layout: drag the page number to quickly scroll to other pages.
- Long-press on a page number to set a bookmark. Bookmarks appear as colored tabs on the book jacket. Press on any bookmark to jump there. Long-press on any bookmark to remove it.

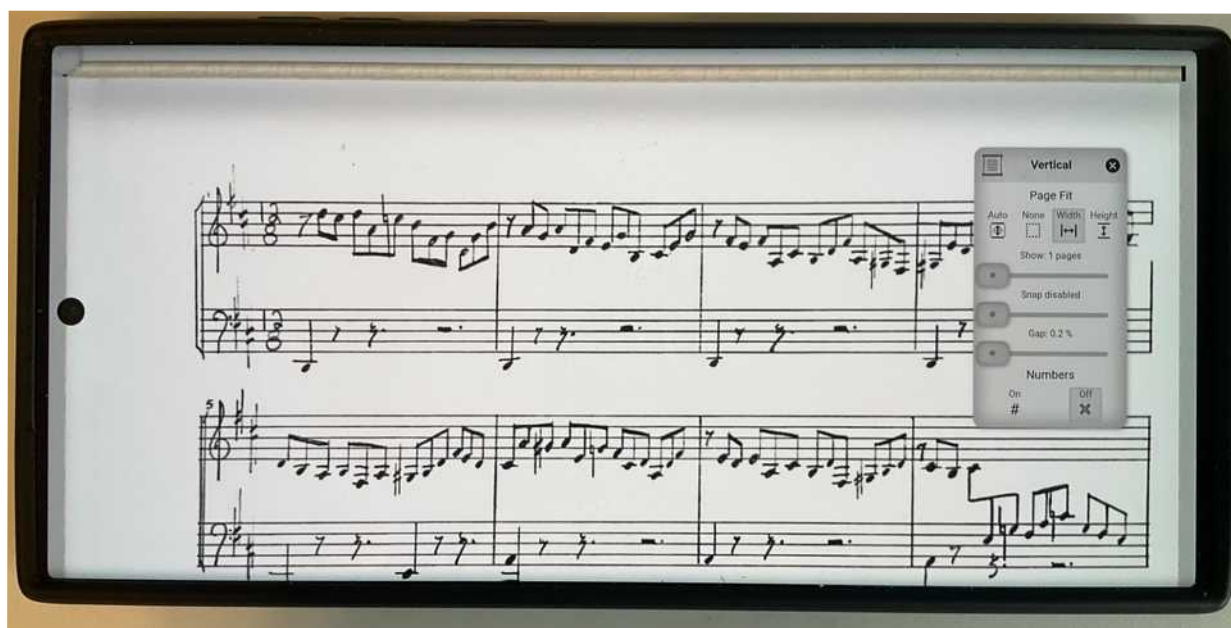
Layout Ring: Vertical

Display the score as a continuous, vertically-scrollable flow of pages.



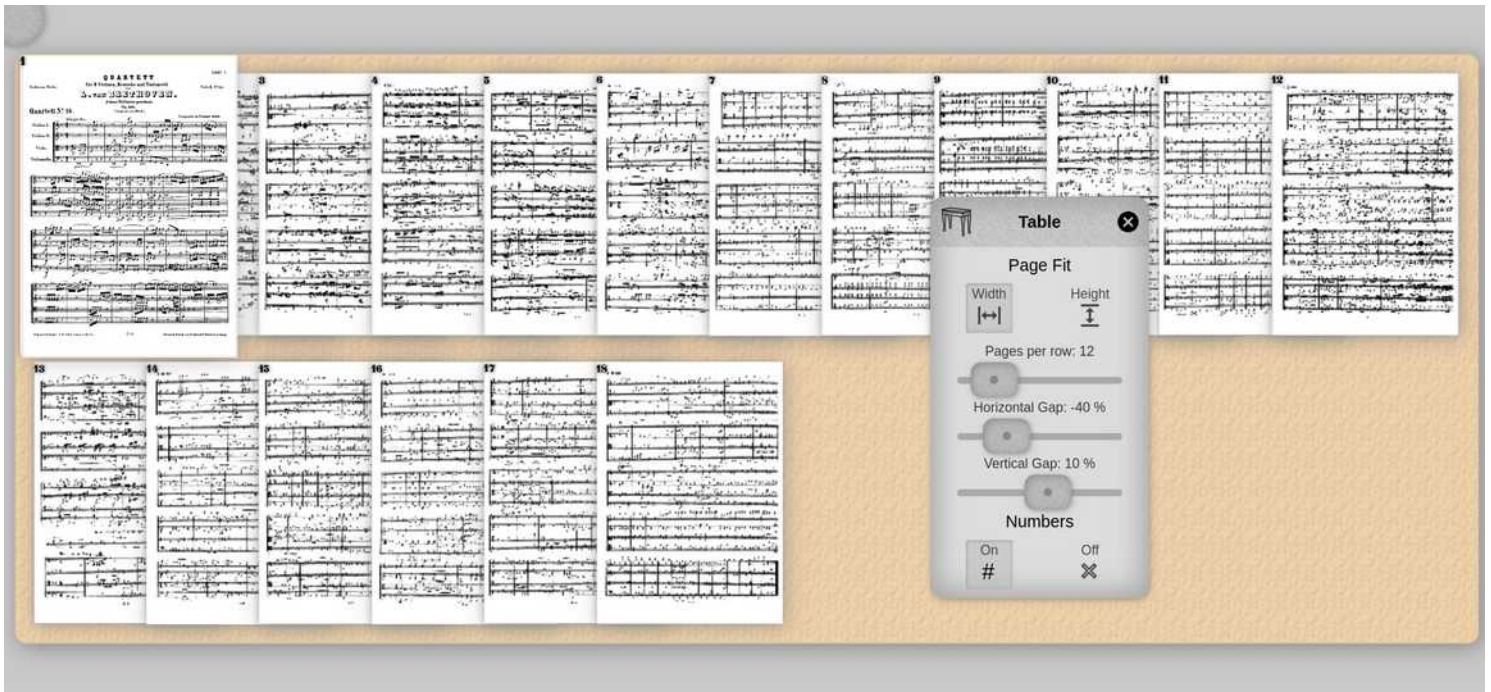
Settings for this layout function identically to the Horizontal Layout, see previous page.

Note: For viewing on a smartphone or small tablet, Vertical layout often gives the best experience. Activate full-screen mode, turn off Numbers, set *Page Fit: Width*, *Show: 1 page*, and *Snap: disabled*, as shown below on an Android phone. Then thumb-scroll through the score. In real-world use, you'd likely dismiss the Panel, either by clicking the close button's X, or by simply flinging the panel.



Layout Ring: Table

Display all pages of the score in a single table.

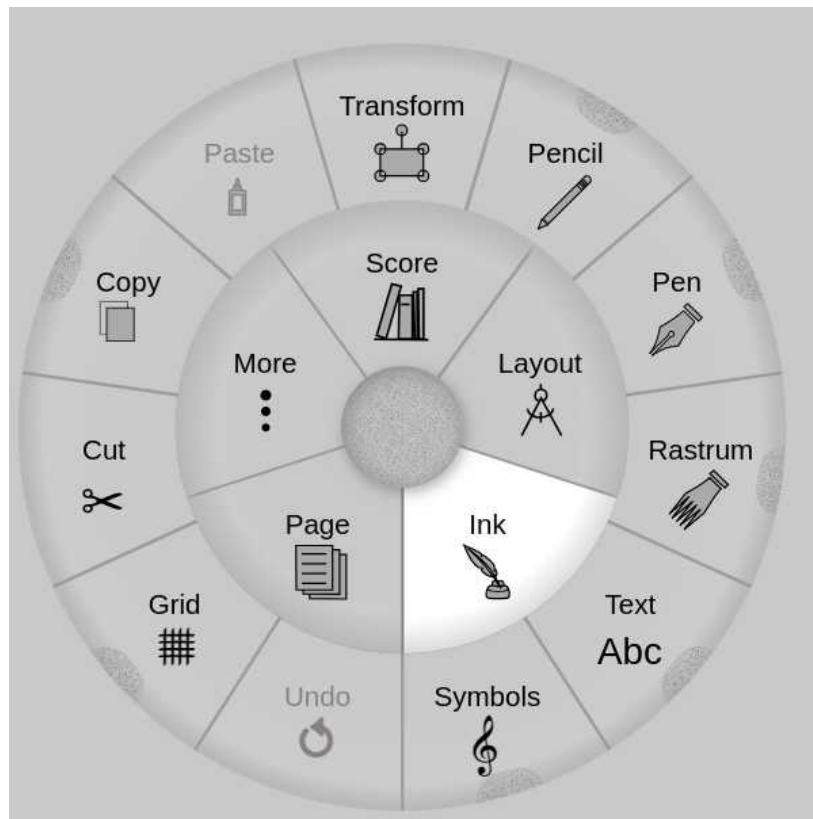


- Convenient when adding/moving/deleting pages (using the Page Ring), or for quickly locating a page in a large score.
- The panel's *Fit* radio buttons determine the layout's initial size:
 - Width: sized to fit the width of the screen.
 - Height: sized to fit the height of the screen.
- After initial layout, pinch-zoom the score to resize/move as desired.
- The panel's *Pages per row* slider determines how many pages are shown in each row.
- The panel's *Horizontal Gap* slider determines the horizontal gap between neighbouring pages, as a percentage of the page's width. Setting this to a negative value causes the pages to be displayed overlapping each other.
- The panel's *Vertical Gap* slider determines the horizontal gap between neighbouring pages, as a percentage of the page's height. Setting this to a negative value causes the pages to be displayed overlapping each other.
- At any time, there is always a selected page, drawn slightly larger and over top of all other pages. If you change to another layout, that layout will open to the selected page.

Ink Ring

The Ink Ring's cells add annotation objects—staves, music symbols, text boxes, and line drawings—to score pages. Tap any cell to activate it, then touch any score page to start drawing, or to insert a symbol or text box, or to perform any of the Ring's other actions: cut, copy, paste, grid, or transform.

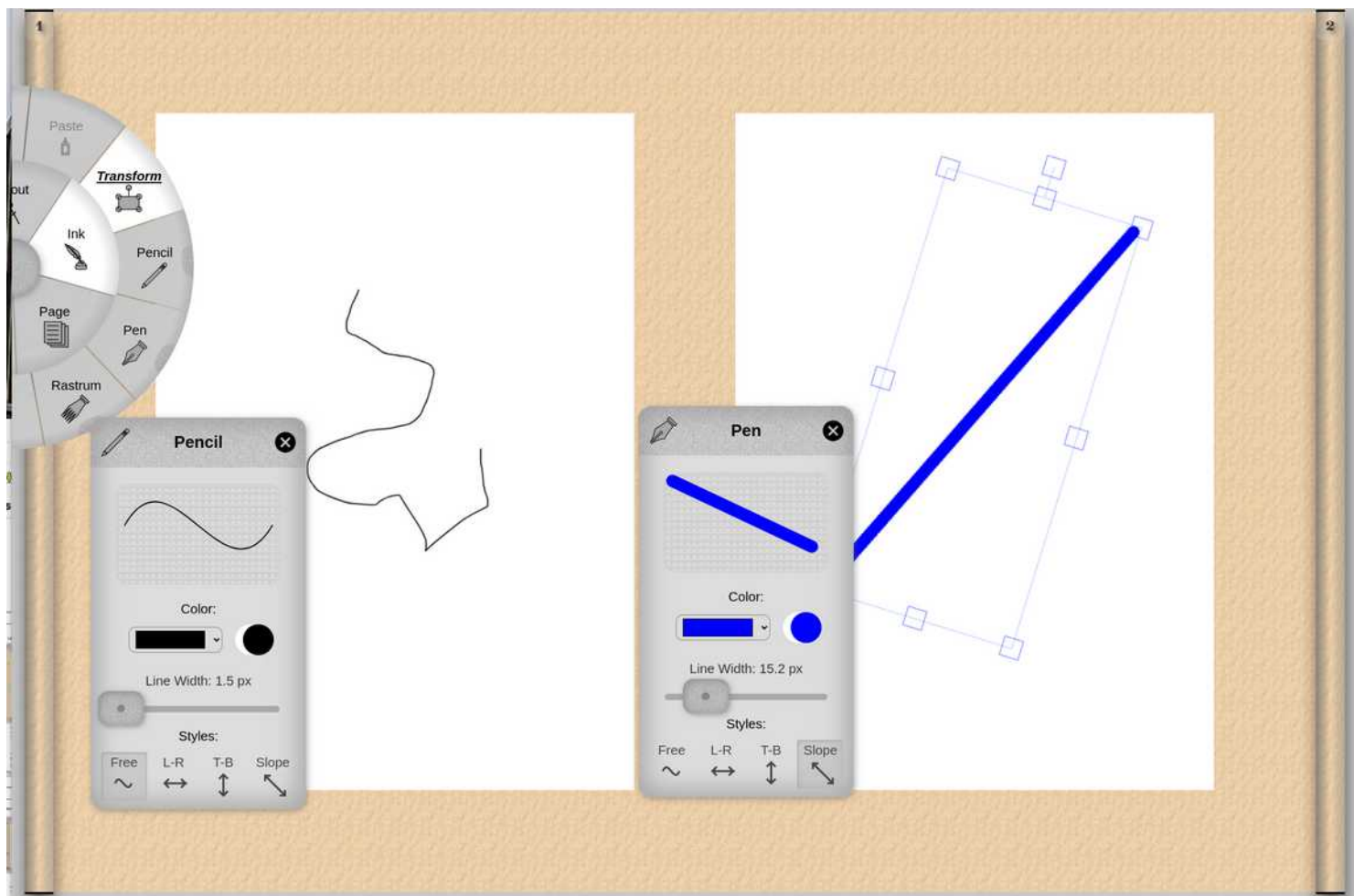
CELL LOCKING: The Ink Ring's cells are “single use”: after you've activated a cell, then interacted with a page, that cell de-activates. Subsequently, with no active Ink Ring cell, touches on the score are interpreted as page navigation gestures. You'll have to re-activate the cell in order to, say, draw two lines in a row. However, long pressing on a cell will both activate and *lock* it. While locked, the cell stays active until it (or any other Ink Ring cell) is tapped. You'll know when a cell is locked because its text label will be underlined. *Locked cells are only available in the Ink Ring and the Page Ring.*



- Cut, Copy, Paste: Each annotation is an independent object that can be cut, copied, pasted, or transformed. To cut or copy an object, tap the Cut or Copy cell, then tap the target object. Then, if desired, tap the Paste cell, and tap the score page where you want to paste the previously Cut/Copied object.
- Transform: while active, tapping on any existing annotation allows it to be selected, moved, rotated, or resized. The object to be transformed must be selected by tapping before any move/rotate/resize operation can be performed, requiring a second activation. For this reason, the Transform tool is almost always activated by a long press to lock it.
- Pencil, Pen: The line drawing tools. They are functionally identical; however, using their associated panels, they can be configured differently (color, line width, etc) so that two different lines types are immediately available for use.
- Rastrum: A tool for drawing staves. More generally, a tool that draws a settable number of parallel lines, either horizontally or vertically. Consequently, the tool can also be used for medieval/renaissance staves, lute and guitar tablatures, chord diagrams, and so on.
- Text: adds editable, multi-line text boxes to a page.
- Symbols: adds individual music symbols. The Symbol cell's panel provides access to the almost 3000 music glyphs contained in the included Bravura music font.
- Undo: Undo the last Ink Ring action.
- Grid: Displays a configurable drawing grid over the page.

Ink Ring: Pen, Pencil

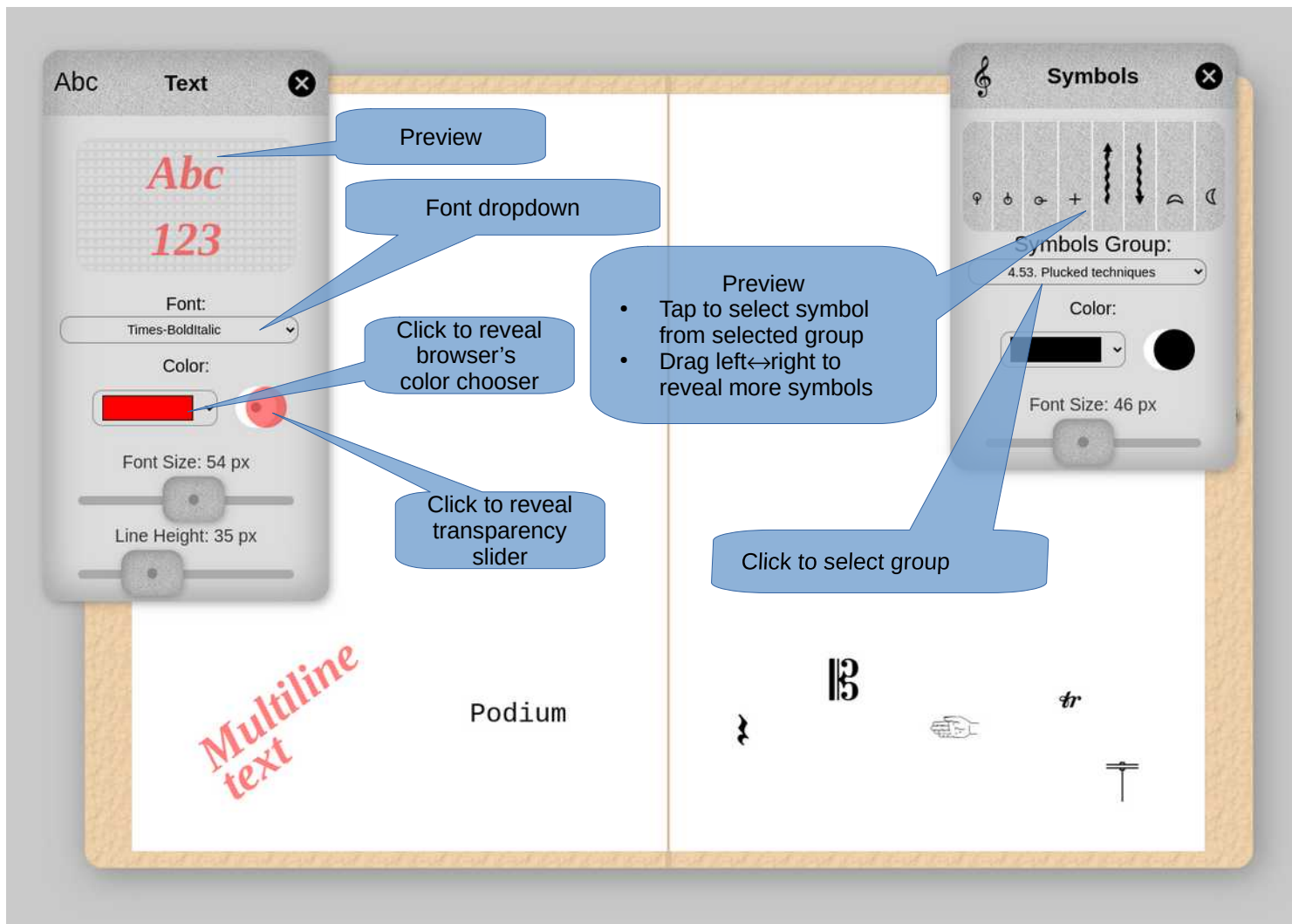
Draw lines on score pages.



- The Pen and Pencil Tools have identical functionality. Configure them independently: that way, two unique line-drawing styles will be readily available.
- Tap on the color swatch in the Panel to invoke the Browser's native color chooser.
- Tap on the pair of circles in the Panel to reveal a slider that adjusts opacity.
- Buttons on the bottom effect how the lines are drawn:
 - Free: unconstrained drawing.
 - L-R: constrained to horizontal, left to right straight lines.
 - T-B: constrained to vertical, top to bottom straight lines.
 - Slope: constrained to angled straight lines

Ink Ring: Text, Symbols

Add text boxes and music symbols to a page.



Text panel:

- Set line height for multiline text.
- Choose from any of the 14 standard pdf fonts, plus the Bravura font.

Symbols Panel:

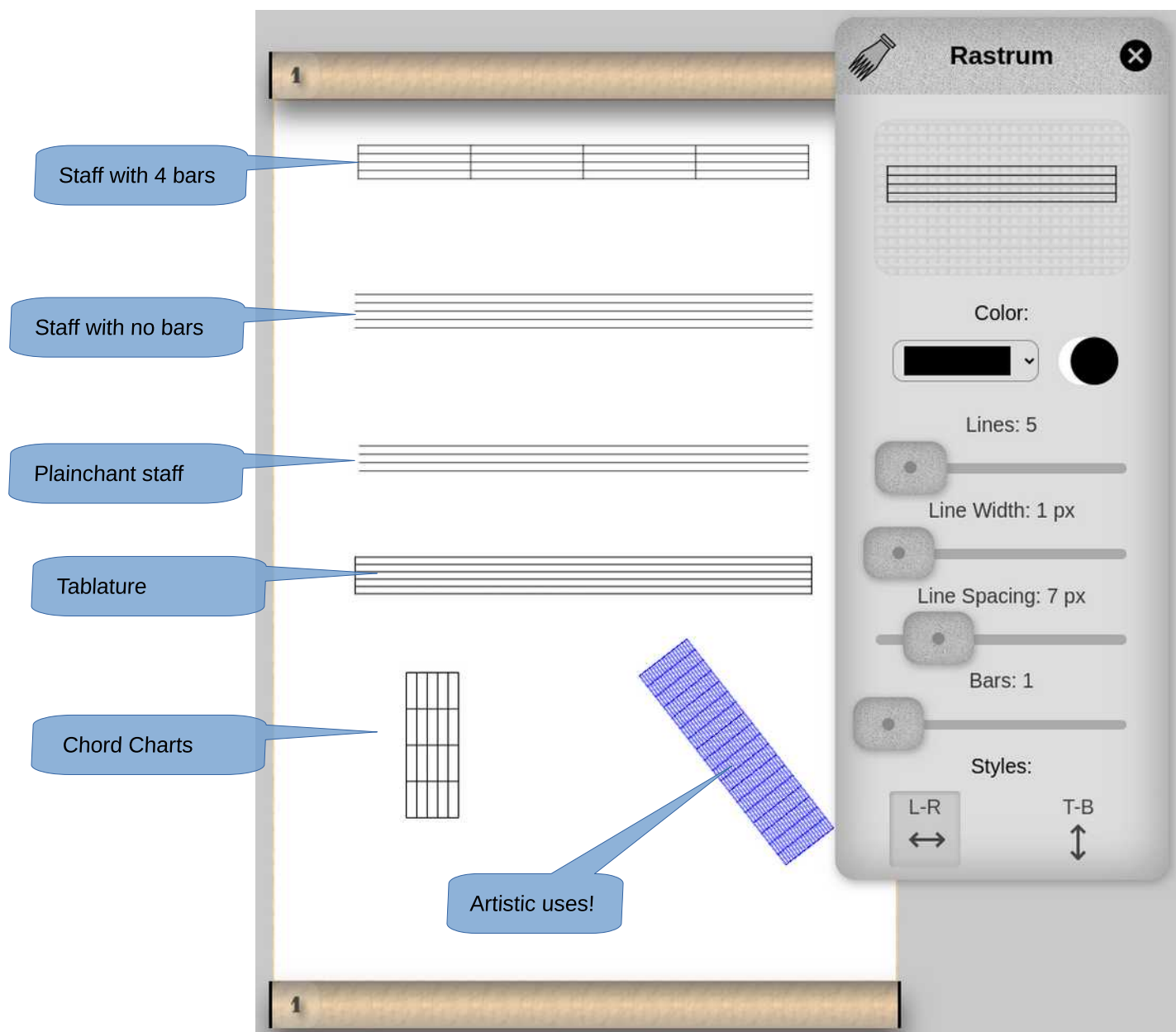
- Symbols are arranged in groups as defined by the Standard Music Font Layout (SMuFL), see:

<https://w3c.github.io/smufl>

- Choose a Symbols Group from dropdown, then tap to select a symbol in the Preview. Note that most groups have many more symbols than are visible in the preview: drag left↔right to see them all.

Ink Ring: Rastrum

Draw music staves.

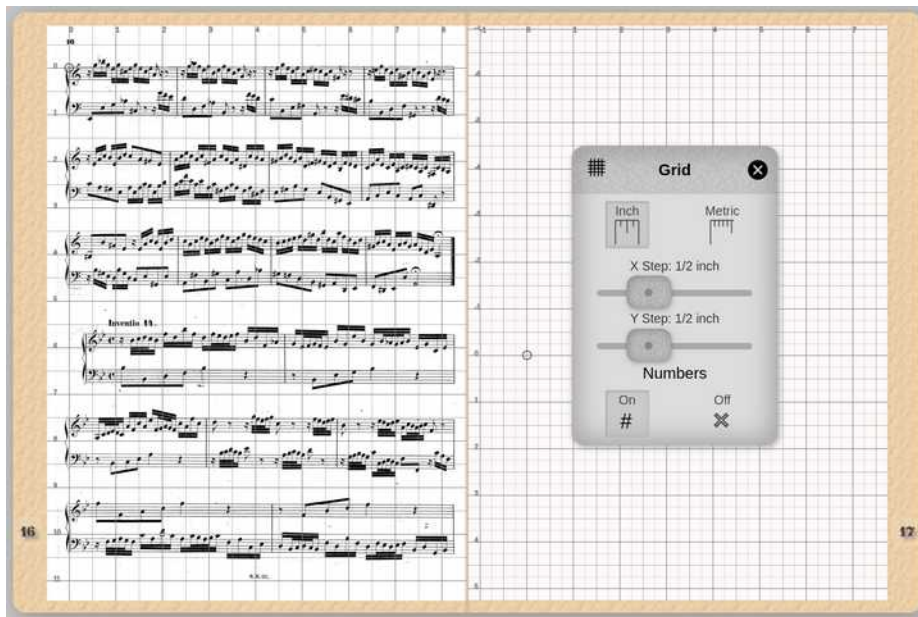


In the real world, a rastrum is a 5-pointed pen for ruling manuscript paper.

- Podium's Rastrum tool draws multiple lines, with potentially multiple bar lines.
- The rastrum is used by by touch on the page, then dragging to define object's length.
- Set the style to L-R or T-B to draw horizontally or vertically. Once drawn, a staff can always be rotated using the Transform tool.

Ink Ring: Grid

Draw a 2-d guide grid for measuring and layout.

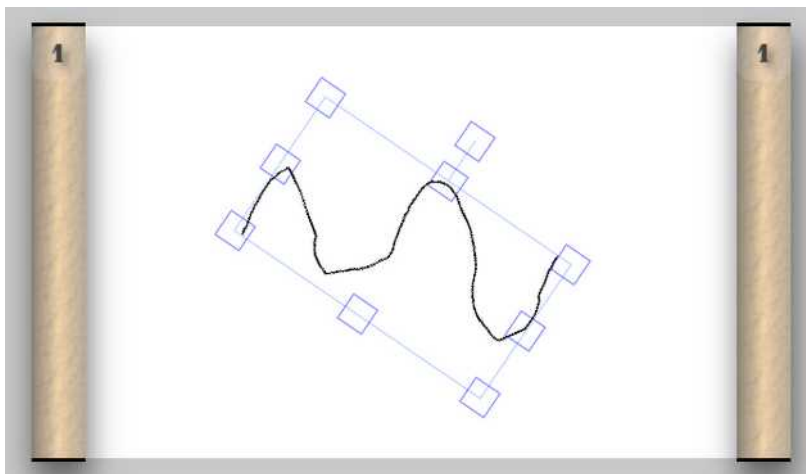


- The Grid panel can be configured using Metric or Imperial (inch) units.
- The Grid is 2-dimensional: adjust the X and Y Step sliders to change how the grid is drawn.
- To precisely position the Grid, first activate the Grid cell, then touch the score. Before releasing this touch, the position of the grid will follow your touch. Use this to precisely align the grid with current features of the score page.

Ink Ring: Transform

Transform (move, resize, rotate) objects.

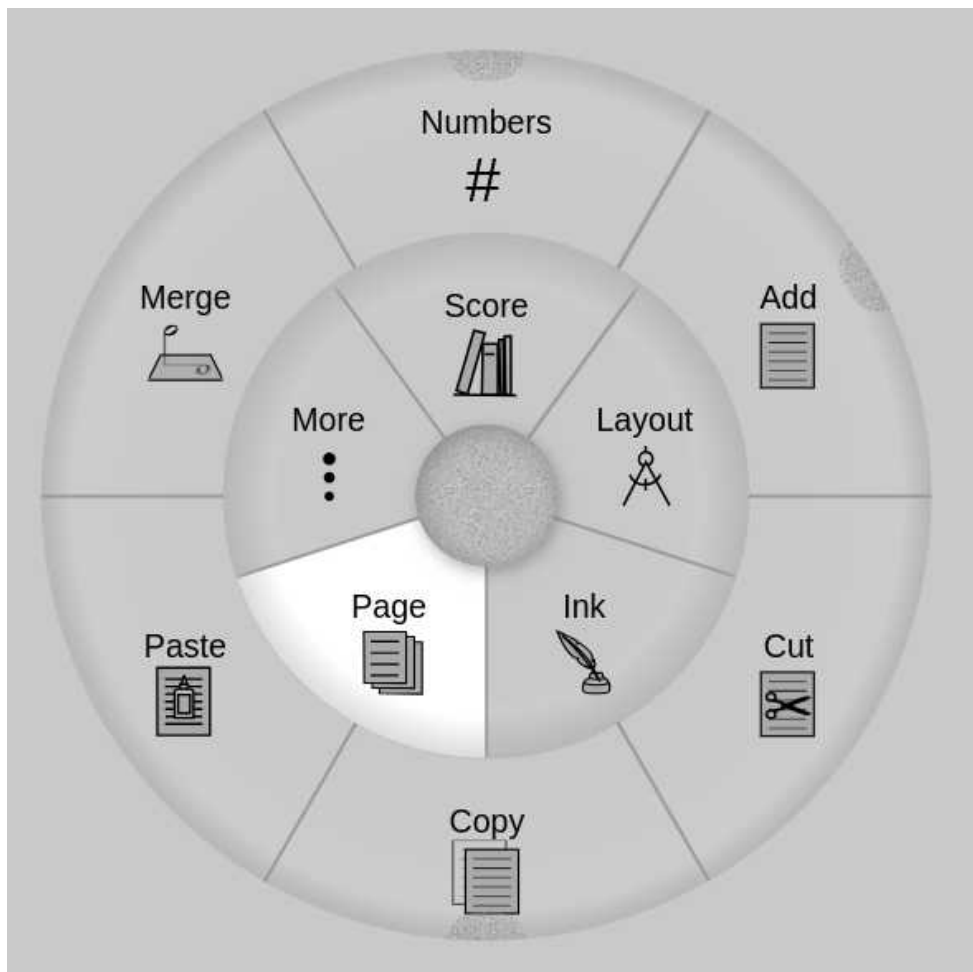
Note: the transform cell is almost always activated with a long-press to *lock* it.



- With the Transform cell locked, select an object by touching it, or by sweeping a rectangle around it.
- Move the rectangular handles to resize/rotate the object:
- Top handle: rotate object.
- Corner handles: resize, preserving object's aspect ratio.
- Middle handles: resize, stretching object's aspect ratio.
- Touch-drag within the object to move it.

Page Ring

Manipulate the pages of a score.

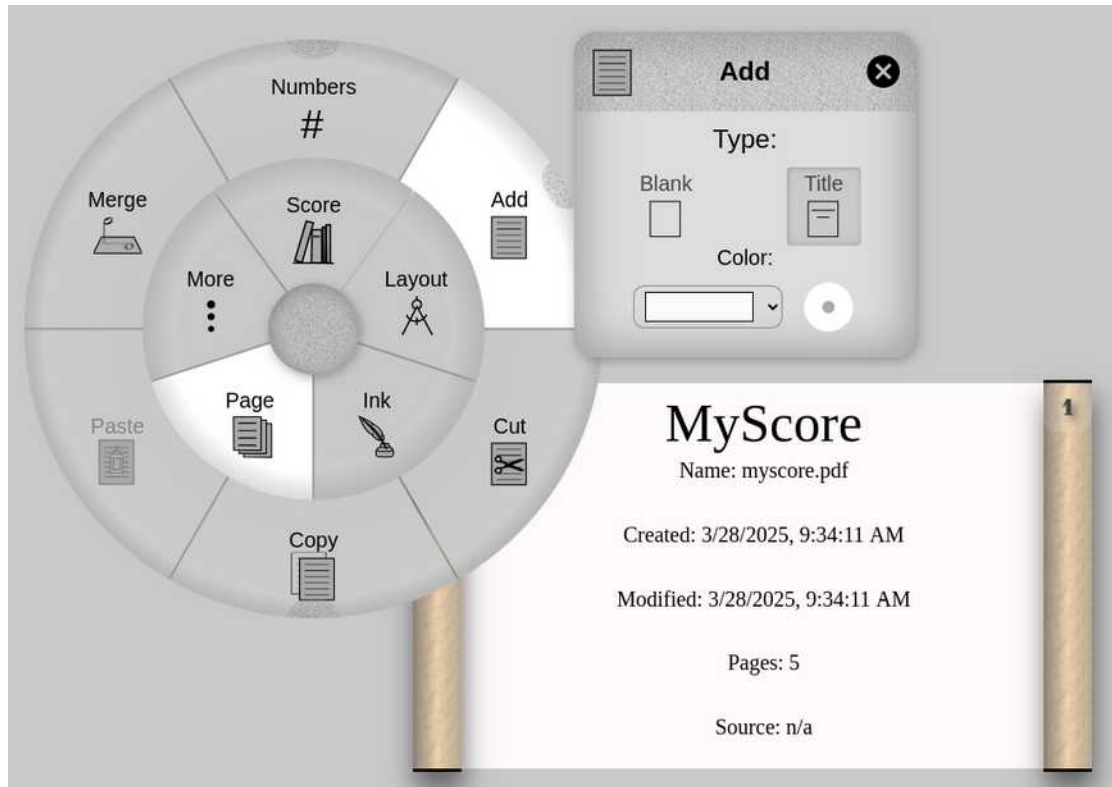


- Add: Insert a new, empty page into the score, as configured by the Add Panel.
- Cut, Copy, Paste: Activate the Cut (or Copy) cell, then touch the score page you wish to cut (or copy). Next, activate the Paste cell, then tap a score page. If the tap is on the *left* side of the page, the cut (or copied) page is inserted *before* the tapped page, else it is inserted *after*. (For Vertical Layout only: touch *above* the middle of the score page to insert before, or *below* the middle to insert after). Note that there is no Delete Page operation: instead, cut the desired page, then skip any subsequent paste.
- Merge: A merge operation merges all Ink objects on the tapped page into the page itself. After merging, those objects can no longer be transformed: they are no longer treated as annotations, becoming instead integral parts of the score. Because this operation cannot be undone, you'll be prompted to confirm before the operation is committed
- Numbers: Drag out to reveal a panel that displays and configures score page numbers.

CELL LOCKING: the Page Ring's cells are "single use": after you've activated a cell, then interacted with a page, that cell de-activates. Subsequently, with no active Page Ring cell, touches on the score are interpreted as page navigation gestures. You'll have to re-activate the cell in order to, say, cut or paste several pages in a row. However, long pressing on a cell will both activate and *lock* it. While locked, the cell stays active until it (or any other Page Ring cell) is tapped. You'll know when a cell is locked because its text label will be underlined. Locked cells are only available in the Page Ring and the Ink Ring. *Exception:* the Numbers cell, which has no functionality other than as a placeholder for the Number Panel, cannot be locked.

Page Ring: Add

Configure the appearance of pages added to the score.



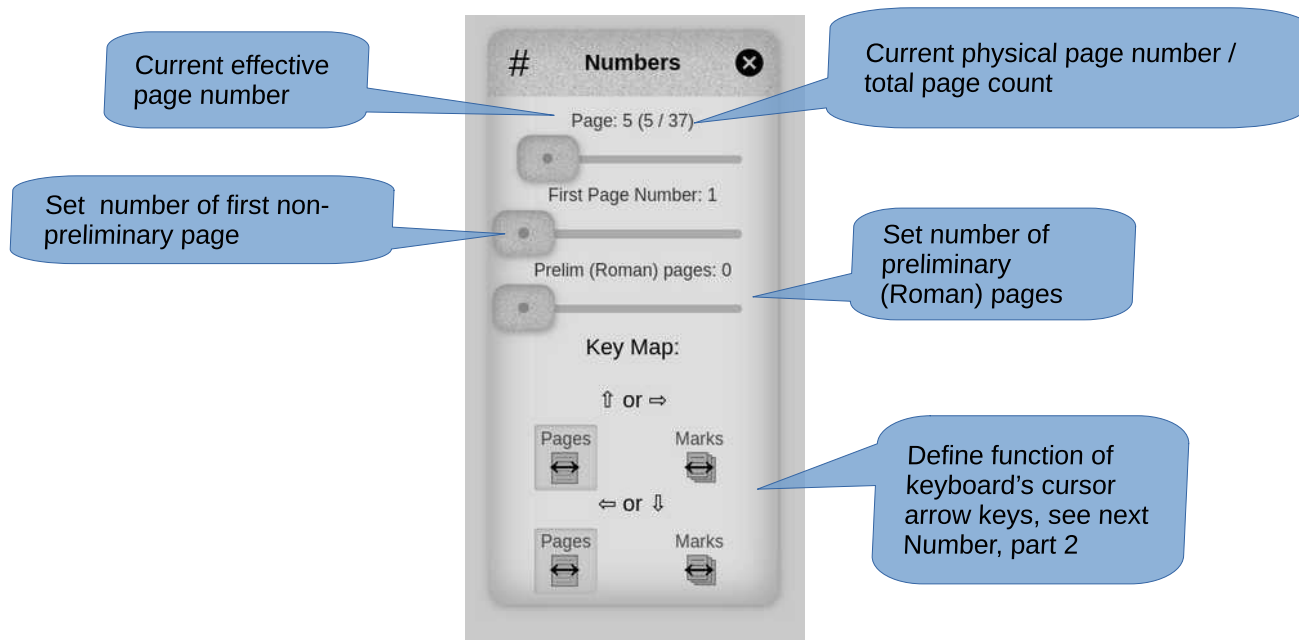
To add a page to the score, activate the Add cell, then tap on any page in the score. If the tap is on the *left* side of the page, the new page is added *before* the tapped page, else it is added *after*. (For Vertical Layout only: tap *above* the middle of the score page to add before, or *below* the middle to add after).

The Add Panel is used to configure the color and type of added pages:

- To configure the color and opacity of added pages:
 - Tap on the Color drop-down to launch the browser's native color chooser.
 - Tap on the double circle to launch a slider that sets the page's opacity.
- To configure the content of added pages:
 - Select type Blank Type to add blank pages.
 - Select the Title Type to add a page that is pre-populated with score metadata. Each metadata field is actually an annotation object, and can be edited after selecting it with the Transform tool of the Ink Ring.

Page Ring: Numbers

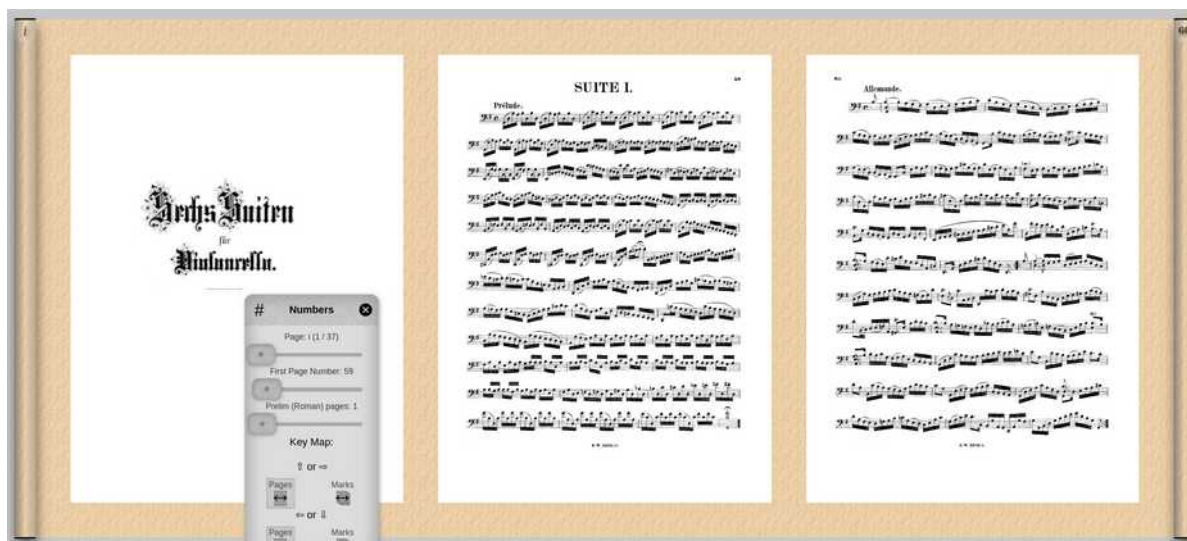
Show/set the score's *effective* current page number and configure how page numbers are counted.



The *Effective* page is the page number Podium displays in the layout's margins. This can be different from the page's 1-based sequence number: as determined by accounting for the following two settings:

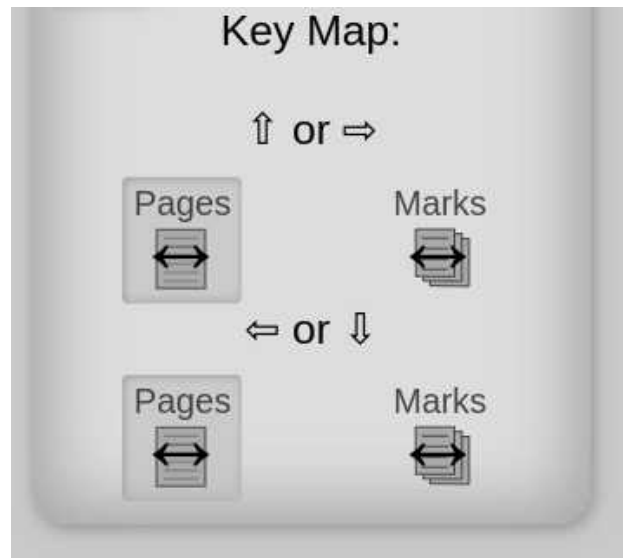
- First Page Number: the number to assign to the first *non-preliminary* page. Normally 1, but this often does not match the page number printed on the pdf, if any. For example, when sections of a larger score are converted to pdf, the first *sequential* page index in the pdf file might well display a page number other than 1. This is especially problematic when the pdf has a table of contents or other preliminary material, where page references don't align with sequential page indices.
- The number of preliminary pages (title page, contents, copyright, and other introductory material). Podium adopts the convention that such pages are displayed using lower-case Roman numerals.

The Numbers panel's *First Page Number* and *Prelim (Roman) Pages* sliders allow you to correct for such mismatches. To illustrate, the following example shows the first three pages of Bach's first Cello Suite, excerpted from volume VI of the first completion edition of JS Bach's works (Bach Gessellschaft, 1850-1900). In this excerpt, the page/s sequential indices are 1, 2, and 3. However, the first numbered page (i.e. the middle page in the layout below) is numbered 69 in the pdf, and it is preceded by a single unnumbered page. To ensure that Podium's *effective* page numbers are aligned with the pdf, we've set the *First Page Number* value to 69, and set the "Prelim (Roman) Pages" value to 1. Accordingly, Podium displays the roman numeral *i* in the left pager, and the arabic number 60 in the right pager. The Number Panel's Page indicator says the current page is *i*, (i.e. the leftmost page), and that this is *sequential* index number 1 out of a total page count of 37:



Page Ring: Numbers (continued)

Configure foot pedal support.



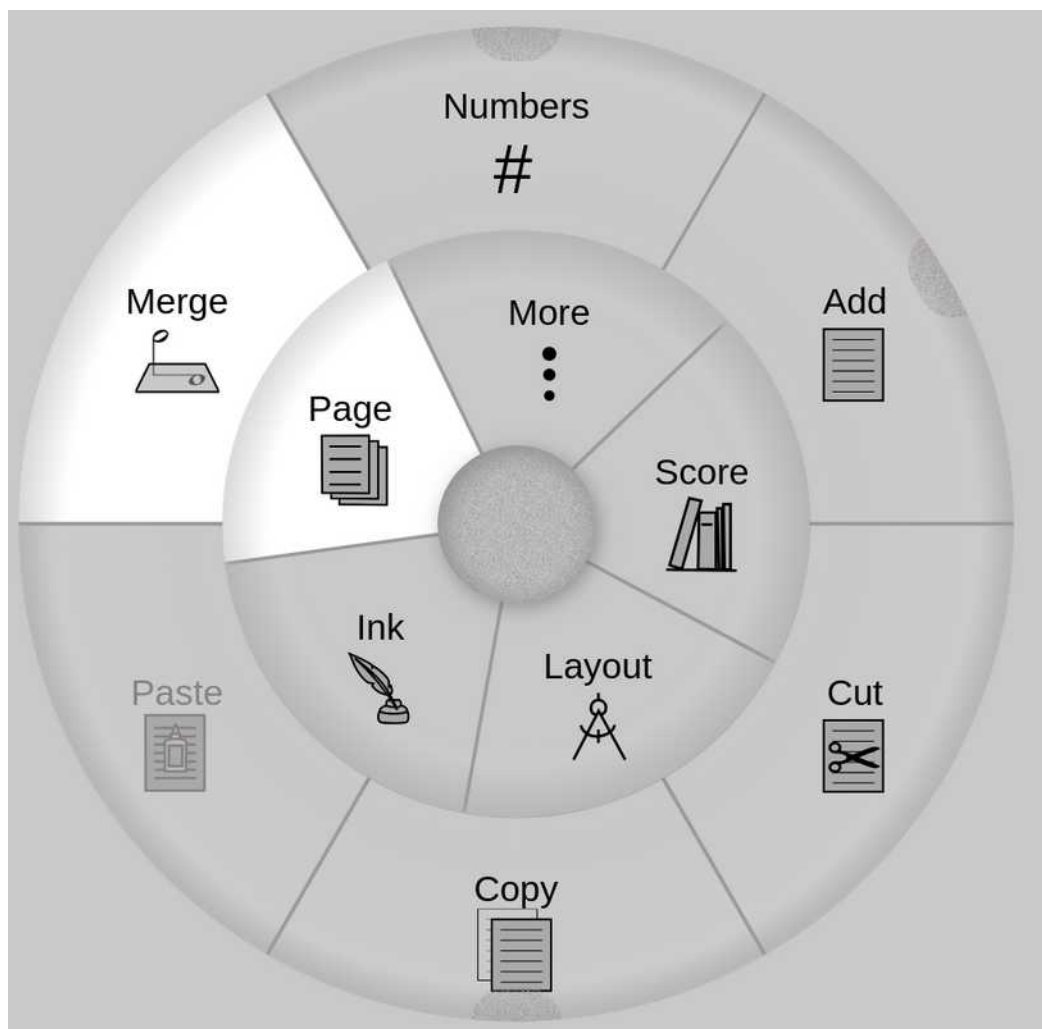
Podium is intended to run on devices that might not have a physical keyboard, and makes limited use of keyboard shortcuts. Note, however, that external foot pedal devices—that is, devices that sit on the floor, enabling score page navigation without removing your hands from your instrument—typically function as virtual Bluetooth keyboards that transmit cursor arrow key codes when their buttons are pressed. Podium's supports such devices by assigning keyboard shortcuts to the cursor arrow keys.

You can assign one shortcut to the *up* or *right cursor* arrow keys, and one to the *left* or *down* cursor arrow keys. Tap the appropriate button to determine if an *up* or *right* key press will navigate to the next *page*, or instead navigate to the next *bookmark*. Similarly, choose the appropriate button to determine if the *left* or *down* key will navigate to the previous *page*, or navigate to the previous *bookmark*.

Note: these keyboard shortcuts are helpful for reading scores that have repeats spanning several pages. Set a bookmark on the page containing the beginning of the repeated section, then configure the *right* or *up* arrow keys to *Pages*, and the *left* or *down* arrow key to *Marks*. Play through the repeat, using the right arrow key (or its foot pedal equivalent) to navigate forward through the following pages. Then, when you reach the end of the repeated section, use the left arrow key to immediately flip back to the beginning of the repeat.

Page Ring: Merge

Merge a page's Ink annotation objects into the background pdf.



In Podium, each page comprises two overlapping layers:

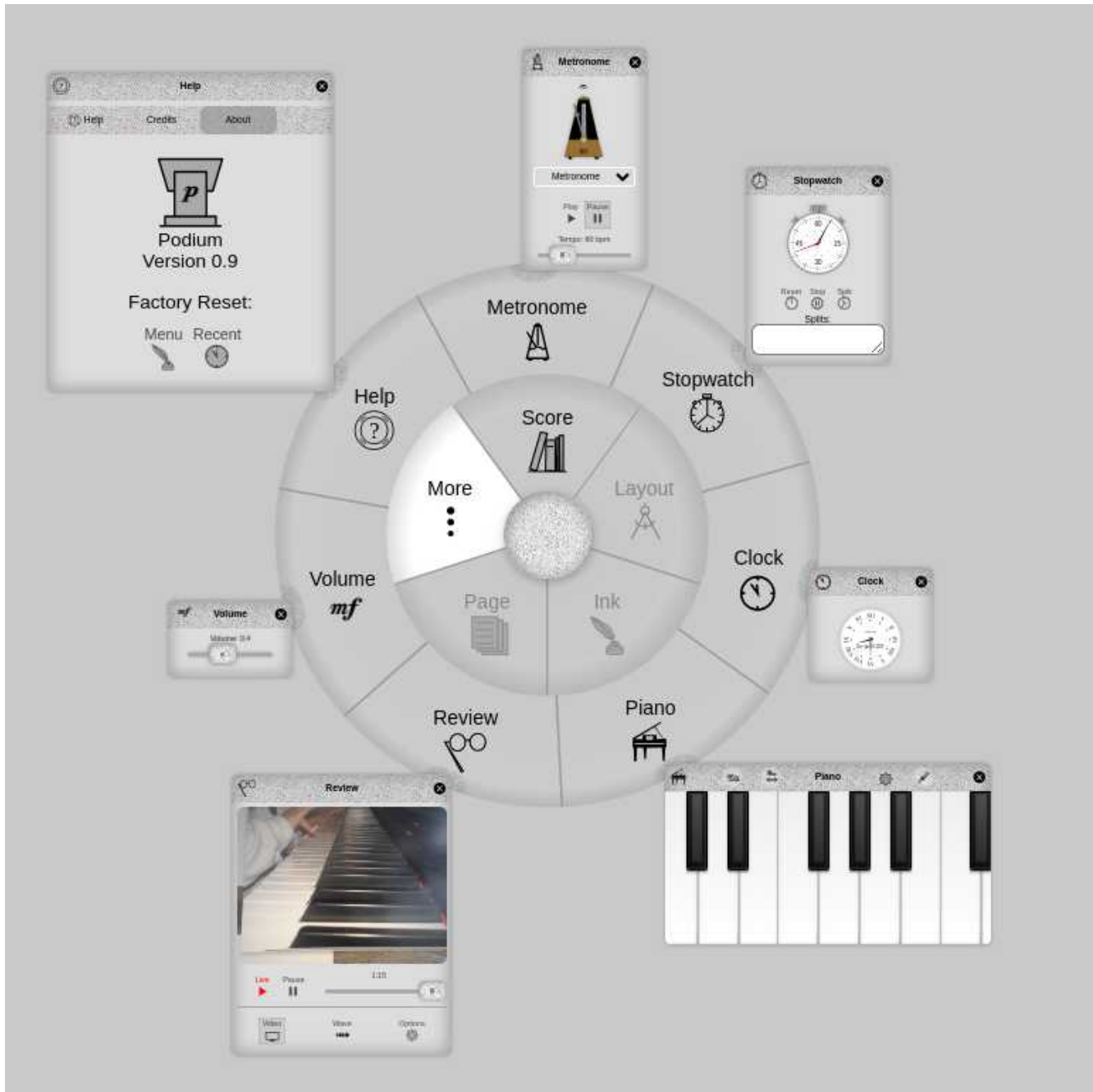
- A background layer that displays the pdf content of the score [courtesy of the open-source *Mozilla pdf library*].
- An overlay layer that displays Ink objects added to the score [courtesy of the open-source *fabricjs library*].

Activate the Merge cell, then tap a page to merge its overlay layer into the background layer. The operation converts all of the page's Ink objects into pdf objects, then incorporates these objects into the background layer [courtesy of the open-source *pdf-lib library*]. After that, these merged objects can no longer be selected or edited: they have become an integral part of the score's pdf content.

Merges can be very useful. For example, suppose you've used the Ink Ring's Rastrum tool to draw a staff on a page, and you want to use the Pencil and Pen tools to draw on that staff. The drawing will be much easier to edit if you first *Merge* the staff into the background layer. That way, you'll be able to perform edits without accidentally selecting and editing the staff itself.

Note: Because a merge operation cannot be undone, you'll be prompted to confirm before the operation is performed.

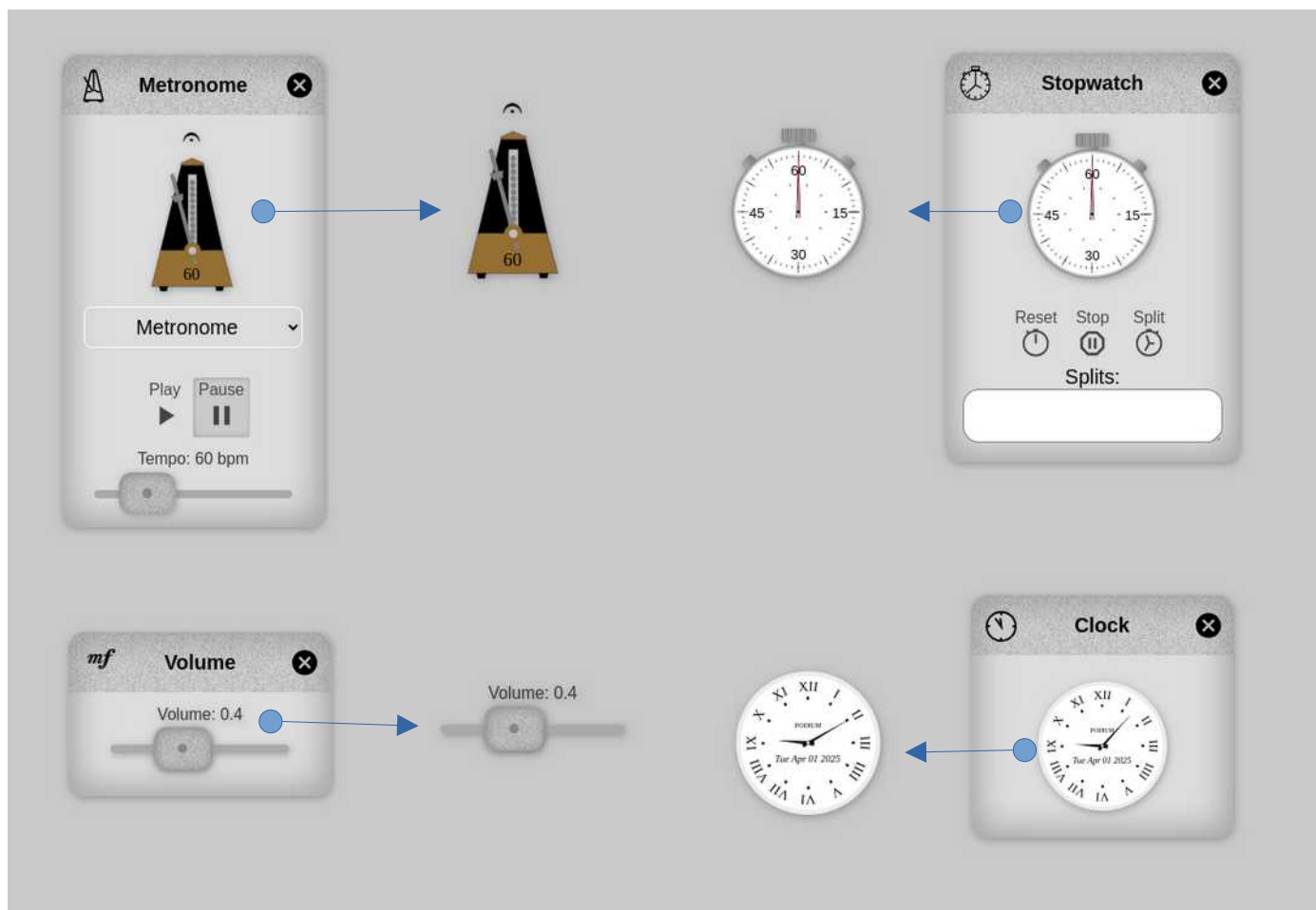
Musician's toolkit.



- Animated Metronome
- Stopwatch with splits
- Wall clock with date
- Piano with tuning features
- Review tool: camera and spectrogram with instant replay
- Volume slider
- Help panel with three tabs:
 - Help
 - Open Source Credits
 - About

More Ring: Detached Panels

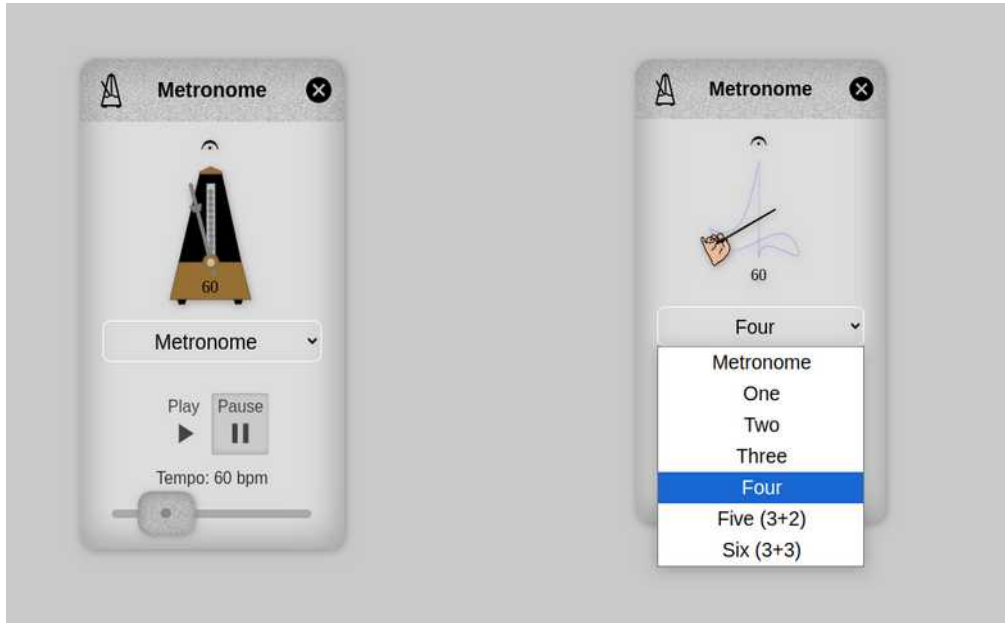
Simplify layout by detaching panel contents.



- The graphical contents of Metronome, Stopwatch, Volume, and Clock Panels can be detached from their panels by dragging onto the background.
- Reposition detached panels by touch-dragging.
- To dismiss a detached panel, simply fling it.
- To reattach, drag the panel from the menu again

More Ring: Metronome

Animated metronome with simulated conductor.

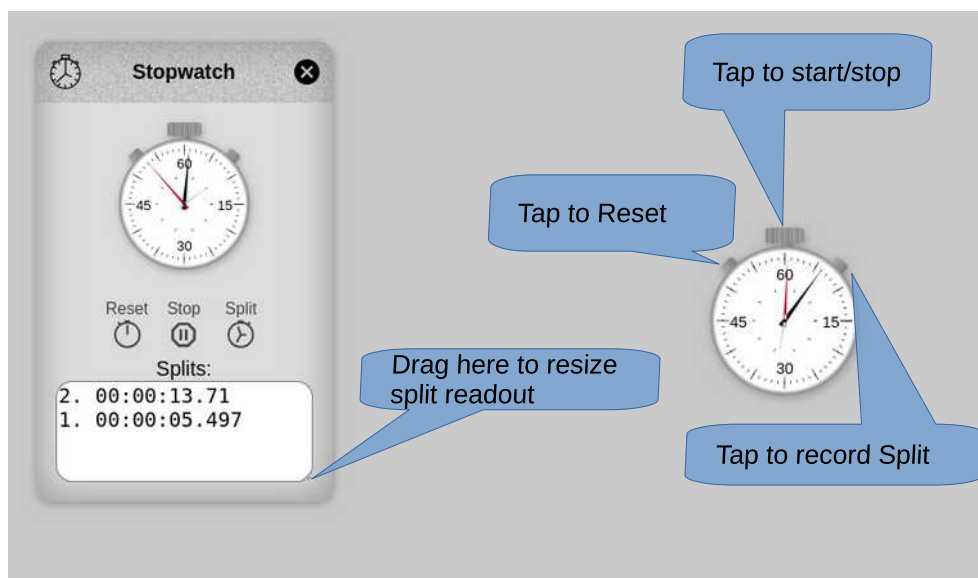


- While detached (see previous page), long-press to play/pause.
- Tap on the metronome to set its tempo.
- Use the dropdown list to change graphic from traditional metronome to conducting pattern, with six different beat patterns.

Note: The conducting patterns are experimental: due to the complexity of the animation, you can expect some misalignment of the pattern and the animation, particularly on slower devices, and at faster tempos.

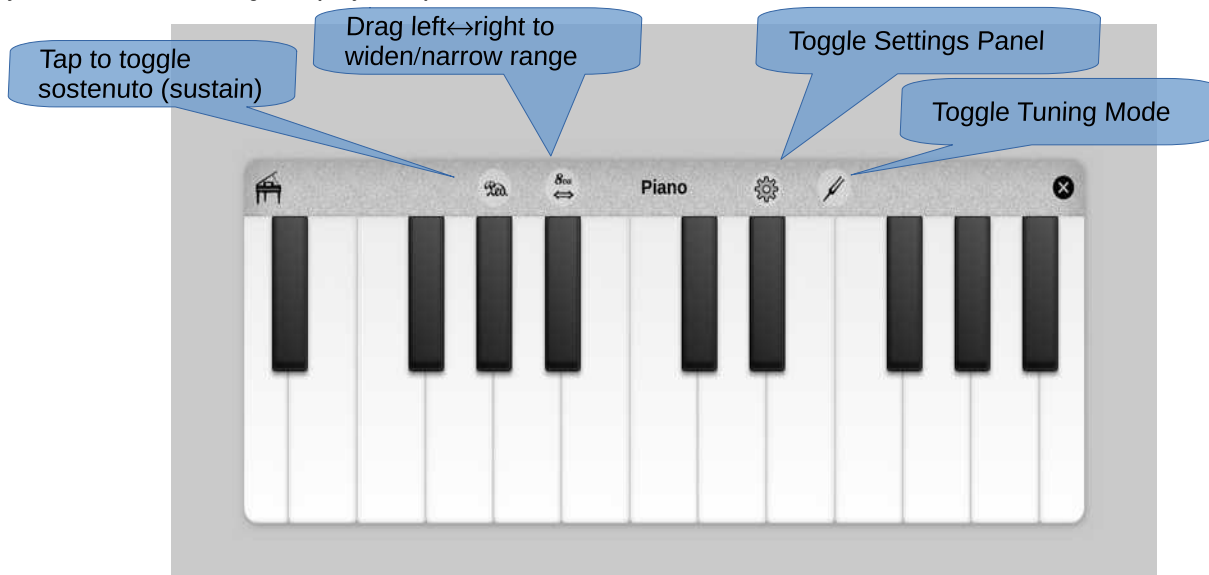
More Ring: Stopwatch

Timer for your practice sessions.



More Ring: Piano

Tune your instrument using this playable piano.



- Drag left↔right from the *8va* (octave) button to widen/narrow keyboard range to a maximum of F1-F6, or minimum of E3-A4.

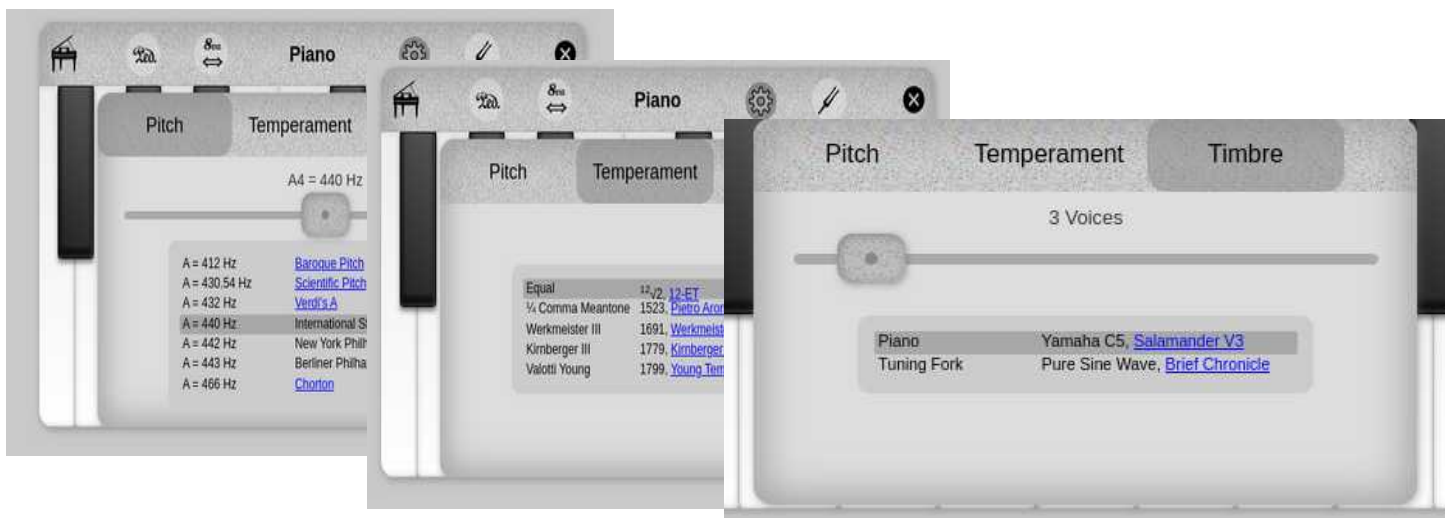
Note: piano samples make up a significant portion of Podium's download size. For this reason, the maximum keyboard size is limited to 5 octaves, a common size for an 18th century harpsichord or pianoforte. Samples have been truncated and down-sampled, reducing size while maintaining (hopefully) acceptable audio quality.

- Tuning Mode: Tap the *Tuning Mode* button to toggle tuning mode. When enabled, key presses automatically repeat every 2.5 seconds (4 seconds for *Tuning Fork* timbre, see Settings.Timbre below), as an aid to tuning.

Note: Podium does not provide an electronic tuner. Instead, use *Tuning Mode*, with the *Tuning Fork* timbre to use the time-honored “beats” tuning method.

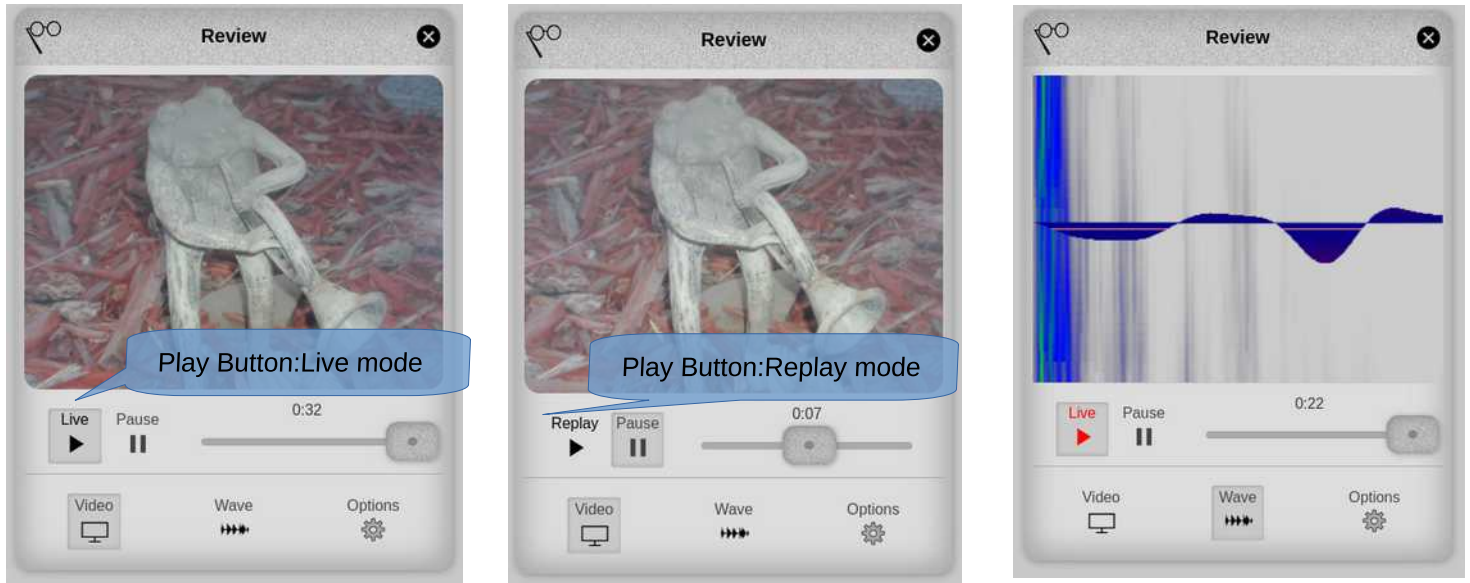
- Settings: Tap the *Toggle Settings* button to toggle the Settings Panel on/off. Once open, you can close it by flinging. This internal panel is always enclosed by the keyboard: drag horizontally to reposition. It has 3 tabs:
 - Pitch: Set the desired frequency of A4 using the slider, or choose any of the 7 presets.
 - Temperament: Choose the desired temperament.
 - Timbre: use the slider to set the maximum number of voices (slide all the way left for *Monophonic [1 voice]*). Select the timbre: Piano or Tuning Fork (i.e. pure Sine Wave, best used with 1 voice).

Note: Most options include links to explanatory web articles. When choosing an options, avoid tapping on these links.



More Ring: Review

Review practice session's audio/video, with instant replay.



This monitors your device's camera and microphone, with instant replay of the last ~30 seconds (configurable). Optionally view *Video*, or the audio *Wave*, overlaid on a waterfall spectrogram.

Note: The tool is designed for interactive use only. By design, its recordings are transient, saved temporarily in RAM memory, and lost when the tool is closed.

At any time, the tool will be in one of two modes:

- **Live:** audio and video are continuously recorded, and the *Play* button's text label is *Live*.
 - When the recording length reaches a preset maximum, the first half of the recording is discarded, but recording continues. You'll always have at least half of the preset maximum available for replay.
 - Pause recording by tapping the *Pause* button, and resume by tapping the *Play* button (labeled *Live*).
 - The scrubber will always be at the far right, with its label indicating the recording duration in seconds: this will move backwards by half whenever the first half of the recording is discarded.
 - To enter Playback mode, drag the scrubber to the left. Playback begins at the chosen location.
- **Playback:** recorded audio and video are played back, and the *Play* button's text label is "Replay".
 - Pause playback by tapping the *Pause* button, and resume by tapping the *Play* Button (labeled *Replay*).
 - To reenter Playback mode, drag the scrubber to the right, or simply wait until Playback ends. Then tap the Play Button to restart recording. Any previous recording will be lost.

